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Foundry Methods That Conserve Labor

The Third Article of a Series on Foundry Practises. This Article Deals With the Making of Block Cylinder Castings. Co-operation Between Foundryman and Engine Inspector Results in Less Waste

By CHESTER S. RICKER

THERE has never been a time in the industrial history of the United States or of any other country for that matter when the necessity for increased production with less labor was more acute.

The average layman little appreciates the fact that where we had six men in this country last year to furnish the necessities for one fighting man "over there," we only have four this year to furnish the equipment and necessities for every two men who have gone across.

There are many ways to take care of this economic situation. One is to take labor from non-essential industries and bring them into essential ones. This is the simplest, but not always the best. It is not the American way of solving the problem, for our manufacturers have long since found out that when there is a large demand for a certain product it is always cheaper, more efficient and more accurate to produce more per man by the introduction of special tools than by trying to increase the number of men working on the job. When you increase the number of laborers it is necessary to instruct each and every one of them and the character of the product during this instruction period is either poor or the losses are high.

Reducing the Losses

An alternative is to reduce the losses so that when a man puts in a whole day's work on a machine he may be sure that practically all the work done will be satisfactory. To be acceptable it must first be sound in the raw product, the machine work accurate and the assembling right. When machine work is properly done the job of assembling something correctly is not so much a matter of skill as of proper inspection and initial instruction. Losses in the machine shop are fewer now than ever before, because there is practically no big production manufacturer who would attempt to produce in quantities without having a complete equipment of jigs and fixtures, together with the necessary tools to machine the work accurately. For example, one manufacturer of a well known engine which is being built for

the Government, had to provide no less than 75,000 jigs, fixtures and gauges before he attempted to produce in large quantities. These took over 8 months time to produce and nearly 6000 men worked on them in about 600 different shops. These tools did not include the drills and cutters which are a standard part of the equipment in any shop. With such an array of tools and fixtures it is only a question of getting good raw products and then carefully inspecting the tools to insure uniformly good work.

Good Raw Material

Hence, if the raw material is good, the manufacturer of today is pretty well prepared to machine and assemble the finished parts with little loss. But imagine how one manufacturer of engines that I saw recently felt when his inspector reported that only six out of a hundred cast aluminum crankcases could be used after they had all been machined. They had a small casting defect that might have been detected at the foundry had there been a rigid inspection. The loss of ninety-six per cent of the castings was not such a serious thing as the loss of the labor and effort put into their moulding in the foundry and their machining in the shop, together with the time wasted by the machine tools on this work. The raw material cannot be too good if we are to get the most out of our labor and factories.

Better Foundry Methods

In one of these articles on foundry practice the writer tried to show how much better the cooperation between the different departments of a steel foundry had become as a result of the war. But this is only one very narrow view of the subject. The war has made it necessary to produce better goods than ever before, as there are no "ifs or ands" about a Government specification. This has brought the foundry men closer together than ever before. Neither one could get away with inferior material. This cooperation has made many strange bed fellows. For example, you will find men who have been keen competitors in the same line of business now sitting around the same table figuring

on how a certain government job can be produced. Thanks to the urgency of the job before us and their patriotic endeavor to do what is right, they have been showing one another how they do this or that thing in a more efficient way. This exchange of ideas is most important for it will lead to a bigger and broader industrial advantage when the war is over. It is already leading to better foundry methods.

Instructing the Outsider

But the foundry men are not the only ones that have been brought together. The purchaser and his engineer have delved into the intricacies of the foundry and its practice more deeply than they have been accustomed to do in the past. As a result one foundry which the writer visited recently has an expert engine inspector in charge of its final inspection department instead of a foundryman or one who looks at the finished castings from that viewpoint. This man has entirely changed the inspection of the grey cast iron cylinder castings that are produced there and the loss at the engine manufacturer's machine shop is very low as a result. Hence this cooperation between the user and the producer is helping us to produce almost as much again with the same labor and with no more effort, because there is practically no waste.

Making Block Cylinder Castings

One of the most intricate and difficult pieces of cast iron work that the founder encounters is the block cylinder casting that is used in truck and passenger car engines today in such large quantities. The intricacy of these castings only indicate the labor which has to be expended not only in preparing the cores and the moulds, but in the setting and pouring of them. Then after they have been cleaned, they have to be tested for water leaks and inspected. Only the most advanced foundries carry the last two tests out in a manner that is at all complete. In the following paragraphs is shown by some concrete examples how intricate and painstaking the work of making up a cylinder casting of the modern type really is and also to give

some idea of the extent and detail into which the modern foundry man has to go in his endeavor to make castings that are right. No business is a bed of roses. If it were there would be no necessity of an inspection department. But progressive founders have found out that it costs less to have a very rigid inspection of their castings before they leave the foundry than to pay the freight on them and make the replacement when they are bad. The additional advantage of catching the defective castings at the foundry is that the cause of the trouble can be caught before too many castings have been spoiled.

Method of Setting up a Cylinder Mould

Before attempting to describe the methods used in inspecting a cylinder casting it seems logical that we follow the process of making a cylinder in the

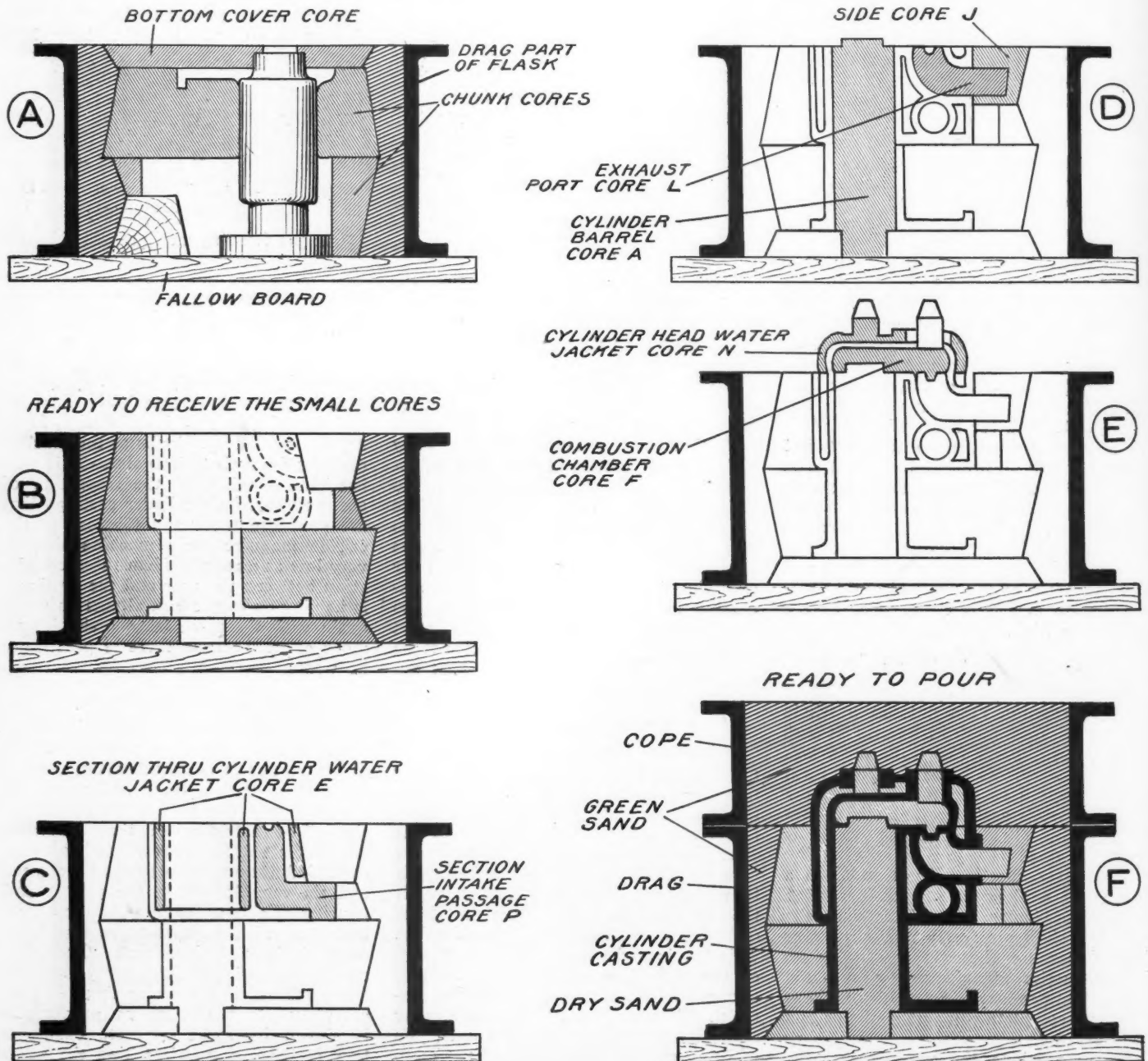
foundry. The following description of how the mould is made does not take into consideration the method of making the cores for that is another department and a very interesting one in connection with the foundry art. Only the finished cores and the method of assembling them in their flasks is shown in this case. The method described in this article is only one of those employed in making cylinders and it is the writer's desire to describe some of the other methods in another article.

Before attempting to discuss the process of moulding a cylinder it is perhaps advisable to explain some of the terms used in foundry practice to make it clearer to the reader who is not familiar with them. The cylinder mould is contained in a box, in this case made from metal, which is divided into two parts, the lower one being called the "drag"

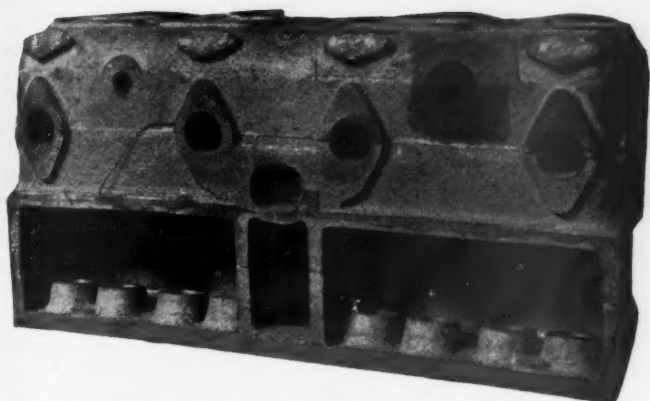
and the upper one the "cope." The division line between the cope and the drag is called the "parting line." The board or platform upon which the drag is moulded is called the "fallow board." The combination of the two parts, the cope and the drag, to form the complete box in which the cylinder is cast is called the "flask." In manufacturing foundries it is the practice to mould each part of the flask separately on special patterns made for this purpose. Metal patterns also are the practice in all such foundries unless there are only a very few parts to be made from the particular pattern. In that case it is usually made from wood.

Preparing the Drag

The process of making the cylinder block casting described here is called the "chunk core method." This is be-



Illustrating the Method of Building up the Mould and the Setting up of the Cores



Finished Cylinder Casting, the Process of Making Which is Illustrated Herewith

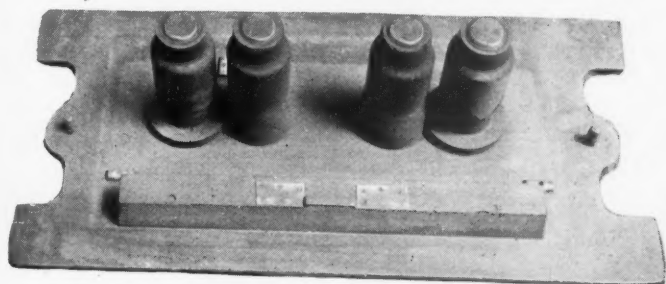


Fig. 1. Special Fallow Board, upon which chunk cores are rammed up in drag flask

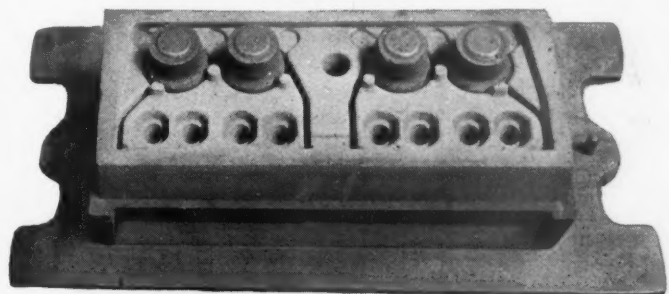


Fig. 2. Chunk Cores in Place, ready to receive the bottom core

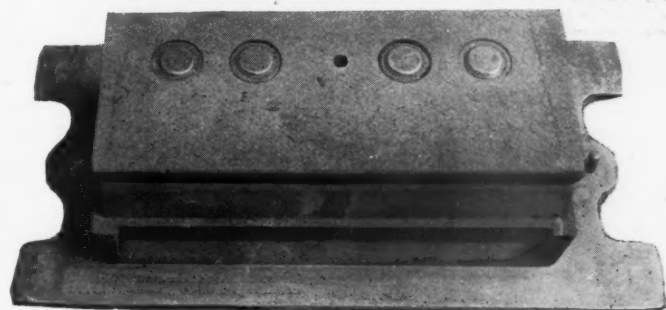


Fig. 3. Cylinder Bottom Core in Place, before putting on drag part of flask and ramming up with green sand

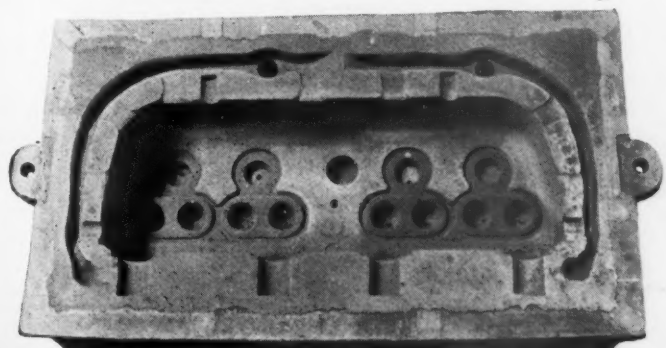


Fig. 4. Cope Part of Flask ready to be put on drag and poured

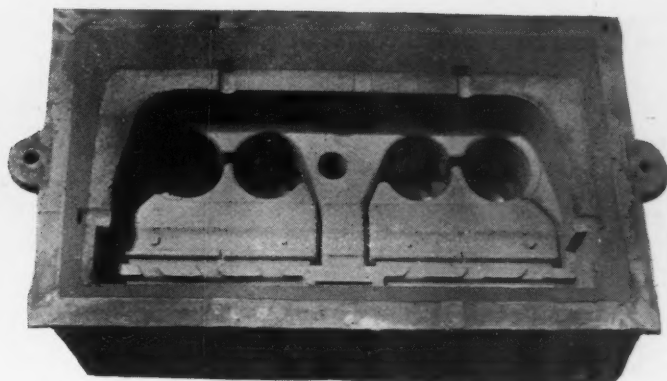


Fig. 5. The Drag Part of the Flask just after it is rolled over and the special fallow board removed

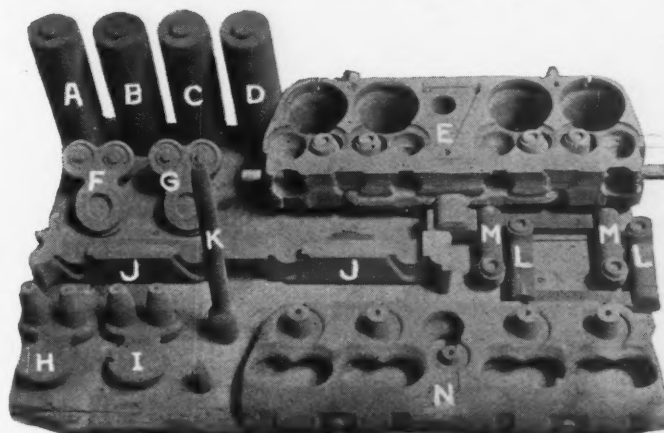


Fig. 6. The Various Cores Inserted in the Drag: A, B, C, D, the cylinder barrel cores; E, the cylinder water jacket core; F, G, H, I, combustion chamber cores; J, exhaust port flange core; K, breather core; L, M, exhaust port cores; N, cylinder head water jacket core.

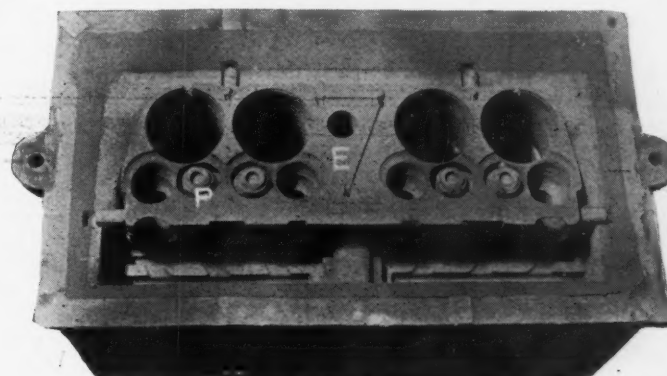


Fig. 7. Drag Flask With Cylinder Water Jacket Core, E, in Place. The intake port cores, P, are also in place and clearly shown

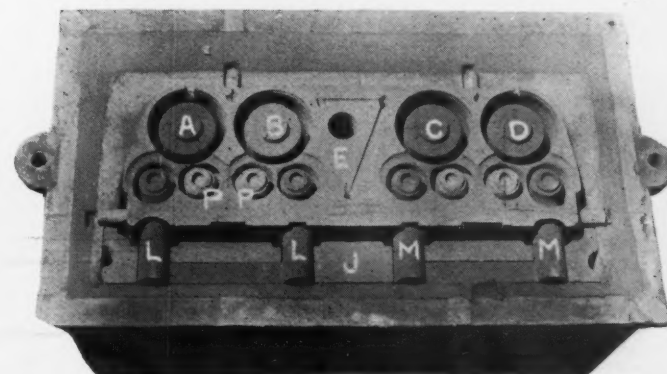


Fig. 8. Drag With Cylinder Barrel Cores, A, B, C, D, and Exhaust Port Cores, L and M in Place

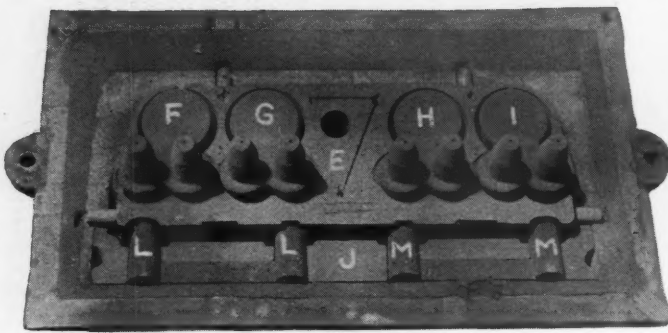


Fig. 9. The Drag With Cores Set, ready to receive the cylinder-head water jacket. F, G, H, I, are the combustion chamber cores; L and M, the exhaust port cores; J, the exhaust port flange core.

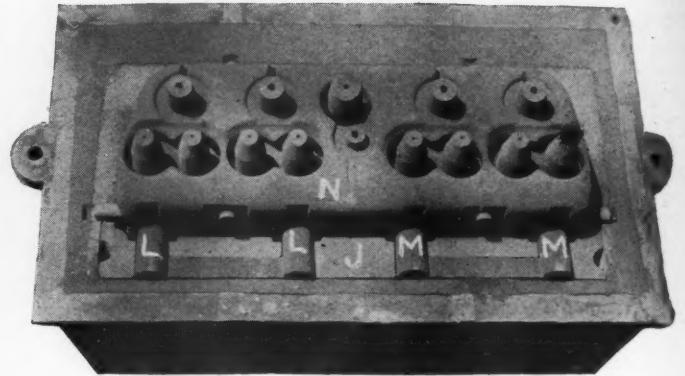


Fig. 10. The Drag Ready to Receive the Cope. The cylinder-head water jacket is clearly shown

cause the outside of the cylinder as well as the inside of the cylinder is formed by a core. This distinguishes it from the green sand method in which the cylinder is moulded in green sand and only has dry sand cores for the inside passages. Dry sand is the term always applied to the cores which are first moulded and then baked until they are hard. Green sand is the soft moist sand which is put into the mould and which depends upon its moisture to hold together while the iron is being poured into the mould.

The "chunk core" forms the major portion of the cylinder outside walls and barrels. It is made up in two parts, which are pasted together before it is brought to the foundry floor after being baked. The fallow board is made up for a casting of this kind with as many projecting cylinders as there are cylinders in the casting to be made. These wooden cylinders are spaced exactly like the insides of the cylinder barrels in the castings. They serve to locate the "chunk core" when it is set down, in-

verted, upon the fallow board. It is then necessary to provide some part of the mould to form the bottom face of the cylinder flange. In this case a flat core is placed on top of the "chunk core" for this purpose. The next step in the process is to lower the drag portion of the flask down around the chunk core and the bottom piece core. When this has been done there is still about an inch and a half space all around the chunk core between it and the flask. This space is filled in with green sand which not only serves to support the chunk core, but also to act as an elastic cushion between the casting and the iron when the latter cools and expands. This is one thing which makes it possible to use the chunk core, because if dry sand only were used there would not be sufficient resiliency and there would be a chance of setting up severe internal strains in the casting while it was cooling. These strains are set up by the iron as it cools, first due to sudden expansion just before it solidifies and then due to contraction during cooling.

Metal flasks are used entirely in this foundry because of their greater life and the accuracy with which they may be assembled, for it should be remembered that the core and the drag never meet until the flask is closed and at that time the relative position of the cores and mould in one must match up exactly with that of the other which has been moulded in another department. To assure that the drag will hold the chunk core in the proper position, guide pins are provided in the fallow board that slip into the guide plates mounted on the ends of the drag part of the flask. The use of the green sand on the sides of the chunk core allows considerable variation between the core position and the flask and thus permits rapid moulding on the foundry floor without danger of the cope not matching with it when the flask is closed.

The Cope

The preparation of the cope part of the mould presents no very difficult problems. It is made with a pattern of white

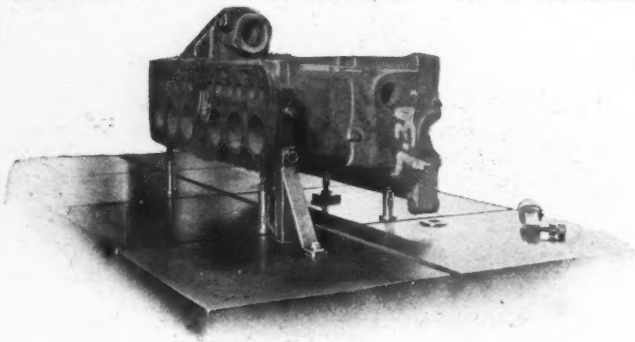


Fig. 11. Cylinder on Inspection Plate, showing location pins, which are identical with those used on first jig or fixture in machine shop

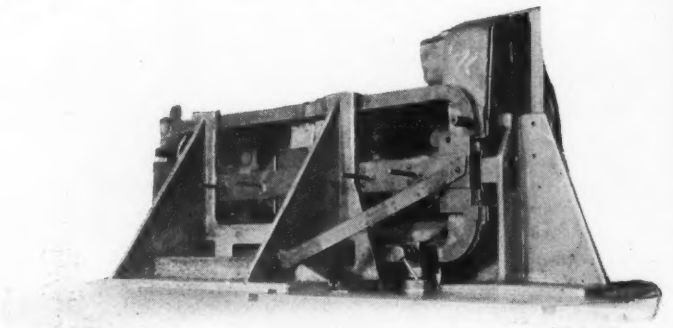


Fig. 12. Looking Into Bottom of Crankshaft on cylinder, inspecting jig for a six-cylinder engine

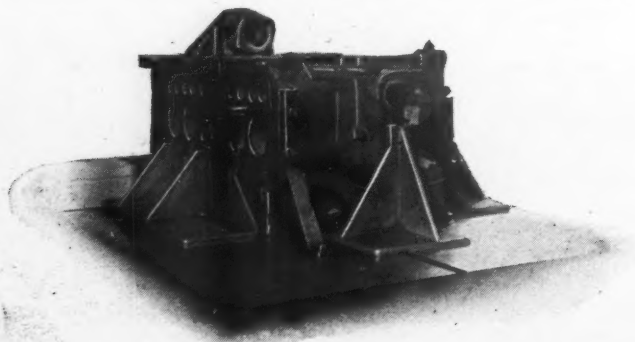


Fig. 13. Cylinder on Inspection Plate, showing gauges in place on all sides and top of the cylinder

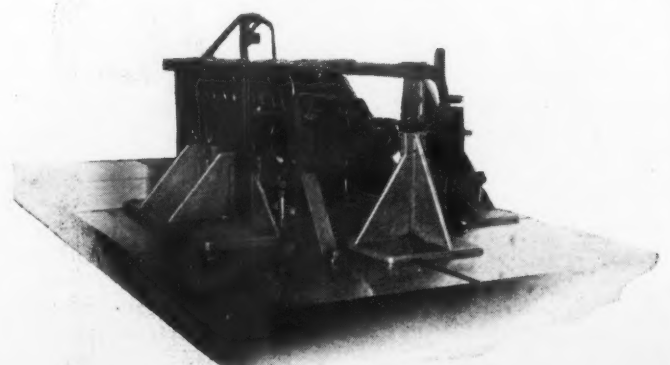


Fig. 14. Gauge on Inspection Plate With Cylinder Removed

metal which is attached to a moulding or fallow board. It is provided with gates or passages through which the iron is fed to the mould. These gates are carefully determined before many castings are made and then they are made a permanent part of the pattern so as to eliminate the personal element in the moulder. A careful examination of the photo of this mould will show that there are two holes provided for the gates which run to the mould. One of these is the spruehole through which the iron is poured into the casting and the other the riser through which the air and gases escape from the mould as the hot iron comes in. A careful examination will show that the gate is not continuous, but has a break at the center between the two holes. Taper holes are provided in the top of this mould to receive the upper ends or as they are called, the core prints of the cores which form the valve port holes and the openings in the center of the water jacket wall over each cylinder. Holes are provided on side to support exhaust port core prints which stick out to one side.

When all the cores have been set in the drag, this cope mould is carefully lowered in place and the flask is said to have been closed. It is then ready to be poured and cylinder casting removed.

Putting in the Cores

After the preliminary work of making the drag, which consists of inserting the chunk and bottom cores and fastening them in place with a green sand jacket, the entire drag is rolled over and the fallow board with the four wooden cylinders attached to it withdrawn. The drag part of the flask is then ready to receive the cores.

In the photo of the inverted or perhaps we had better call it the drag in its right side up position (Fig. 5), for this is the position in which it is poured, the difference can easily be distinguished between the dry sand or chunk core and the green sand which holds it in place. The holes which form the cylinder water jackets and the breathers are clearly distinguished. The walls which form the sides of the valve spring chambers of the cylinder are also very clear.

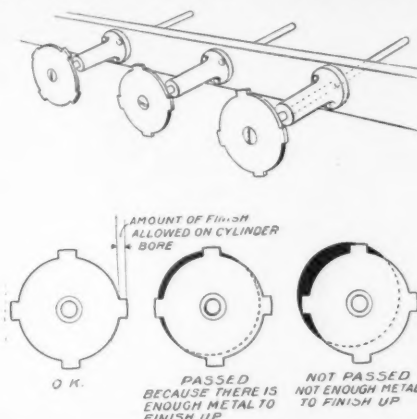
The Cores

Fourteen cores are now required to complete the cylinder casting mould and all are inserted in the drag before the cope is put down in place. Four of these are the cylinder barrel, which are clearly shown at the upper left hand corner of the photograph of the cores. By their side is the cylinder water jacket core. In the foreground the water jacket core for the cylinder head is clearly defined. On the left are the four valve and cylinder head or combustion chamber cores. Two are shown inverted to give a good idea of their form and design. The long round core standing vertically is used to form the breather opening from the crankcase to the top of the cylinder head. The long rectangular core lying in the middle forms the exhaust port flanges which are so irregular that they cannot be put in the mould in any other way.

To the right between the cylinder head and body water jacket are seen the cores which form the exhaust ports. The cores which form the intake passages in the casting are put into the water jacket core while it is being pasted together and hence do not appear as separate cores at this time.

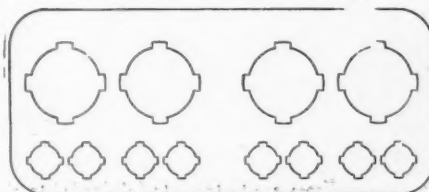
Process of Assembling the Cores

The first operation in assembling the cores is to insert the cylinder water jacket core. This, as mentioned above,

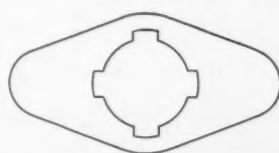


Gauge Used for Bottom of Cylinder Bores Inside of Crank Case

also carries the intake valve passage cores which can be clearly distinguished in the photo. This core does not rest on the bottom of the chunk core, for if it did there would be no enclosing wall at the bottom of the cylinder water jackets. It rests on the part of the chunk core which forms the valve spring chamber and is supported at top by four core prints which are clearly shown. These leave holes in side of casting, which have to be closed with plugs before use.



Gauge Used at Cylinder-Head End of Cylinders



Gauge Used Over Flanged Openings

The next operation is to insert the cores for the exhaust ports. These are formed in pairs with a rectangular core print tying them together. This not only locates them exactly in regard to the rest of the cores, but stiffens them up to an extent that prevents them shifting when the hot and heavy iron strikes them. These have to be inserted at a sort of angle and it is a very nice job to get them in place without breaking either of the cores. Now the four cylinder barrel cores are also slipped in place.

Now the combustion chamber cores are carefully fitted down over the cylinder barrel cores and the intake and exhaust port cores that stick up through the cylinder water jacket core. Then comes the final operation, the final core, the cylinder head water jacket. This slips over the other cores, but does not touch them except on its edges. The core for the breather is then inserted in the middle and the mould is ready to be tested. A steel gauge bar is set over the top of the drag and careful measurement taken of the height of all the core prints and their location so that when the cope is set down in place it will be certain that no interference will be experienced due to some of the core prints being too long. Long core prints are liable to cause the ruin of the whole casting by crowding some of the core out of place when the mould is closed, and since at this time it cannot be seen, the damage done is not discovered until after the casting has been poured.

Cleaning and Testing Castings

After the castings have been poured they are knocked out of the sand and the flasks, the sand of the cores removed through the holes left by the core prints in the water jacket walls and the fins and metal left by the gates chipped off smooth. The castings are then taken to a grinding machine, where all the rough spots are smoothed out. An inspector then goes over the whole casting with a prick punch to determine if there are any defective spots where the metal is thin or porous. In either case the punch will break through, showing the defect.

If the castings pass this point safely they will then go to the final inspection room before they are shipped. It is in this department where they are so carefully inspected to determine if they are at all defective, due either to the shifting of the cores or flasks or to porosity. Porosity of the water jackets is tested by water pressure before they have any other inspection. If they show no leaks under hydraulic pressure they are then placed on the surface plates and inspected for proper proportions.

Inspecting Devices

The inspecting devices present no very difficult mechanism to construct, although a fairly expensive one. They have more than paid for their initial cost, so the writer was informed. They consist primarily of a heavy surface plate upon which are mounted the same form of locating points that are used at the factory in locating the cylinder castings for the first machining operation. The tables are provided with suitable grooves into which the gauges fit or slide. These gauges have a definite location, therefore relative to the casting after it is in place on the locating fixture and hence show at a glance whether the casting has any points at which it cannot be machined. The same is true of all the cylinder bore and plug holes throughout the casting. The idea is shown in the accompanying sketches and photographs so completely that it would be a waste of words to try and explain it more in detail.

Demountable Bodies Prove Great Saving to Large Grocery House

Loading Time Cut Down From Hours to Minutes, Thus Obtaining Maximum Efficiency From Motorized Delivery. A Good Idea for Other Lines of Business to Follow

By A. V. COMINGS

MERCHANDISE distribution by motor trucks is accomplished in a very efficient and economical manner by the Kroger Grocery and Baking Co., of Cincinnati, which operates a chain of grocery and meat stores throughout Ohio, in Detroit and in St. Louis. Over 400 stores are now operated by this company, and nine-tenths of the merchandise is distributed from central warehouses by motor trucks.

Cincinnati is the birthplace and the present headquarters of the Kroger system, and a total of 180 stores are served from the warehouse at Cincinnati. These stores are scattered over a territory extending about eleven miles in all directions from the city, and as Cincinnati and its surrounding country is very hilly, the problem of efficiency and economical distribution of supplies enters very markedly into the net earning records. Small stocks are carried in the Kroger stores, the management relying for profits on quick turnovers, quantity buying and economical methods of merchandising. It is safe to say that without motor trucks the Kroger company could not have extended its holdings as it has in the past few years, for horses could not make the merchandise distributions that are necessary.

The motor truck equipment of the Kroger Company consists of five 7½-ton Mack trucks, using nine detachable bodies, two 5-ton Sauer trucks, one each Service and Speedwell 5-ton trucks, two Service 2-ton trucks, one I. C. H. ¾-ton truck, one Republic ¾-ton truck, six 1-ton Smith Form-a-Trucks, and ten Ford

automobiles fitted with delivery bodies. Of this equipment, the Mack 7½-ton trucks are called upon to do practically all the regular route supply delivery, and their performance under all conditions has been exceedingly good.

To insure a minimum loss of time in loading the trucks, nine detachable bodies are used, empty bodies being loaded at the warehouse, while the full bodies are being used for distribution by the trucks. The Kroger company has evolved a method for handling these detachable bodies which is economical in the extreme and calls for a minimum use of mechanical energy.

Constructional Details of Bodies and Tracks

Each body is of the platform and stake type. On the underside of the platform, placed transversely and spaced equidistant from end to end, are four 5-in. steel channels, bolted securely to the platform with the flanges downward. In each of these channels, mounted in steel brackets, are two steel rollers, 5 in. in diameter, and with a 2-in. face, these rollers being spaced apart the exact distance between the centers of the two side frames of the Mack trucks. The rollers turn on ⅞-in. steel pins. The four sets of rollers support the entire weight of the truck body and load at all times.



Truck in Position to Receive Loaded Body

From empty truck to full loaded truck in less than a minute is the time required



Nine Tons of Load Glides Onto the Truck With Scarcely a Jar

To receive and guide these rollers on the truck, each side frame is fitted with a 4-in. channel, riveted to the top of the frame with its flanges upward, a bar of heavy steel being interposed between the channel and the frame to reinforce the track assembly.

From the sills of four of the double doors opening into the shipping room of the Kroger warehouse are built inclined tracks back into the warehouse, these tracks being 16 ft. long and laid on wooden supports 12 in. higher at the inner end than at the sill. The tracks consist of 5-in. steel channels, with their flanges upward, reinforced between the flanges with a bar of steel ¾ x 4 in. This bar was put in shortly after the original installation, when it was found that the web of the channel was not heavy enough to support the loaded bodies on

the rollers, the weight causing the web to sag, thus turning the flanges inward and interfering with the wheels on which the body moves.

The channels on the truck are bent down over the rear ends of the frame, while the channels on the warehouse tracks are bent down over the door sill, each of these operations tending to minimize the destruction due to backing the truck in place.

the truck by gravity alone, and the loading operation is complete. Strap iron stops near the front of the truck frame keep the body about 6 in. to the rear of the cab. To hold the loaded body rigidly in place four heavy turnbuckles are used, two at the rear pulling the body forward and down, and two at the front pulling the body to the rear and down. This method of holding the load in place has worked out well in practice.

consumes about 15 min., which is reducing almost to a minimum the "idle" time of these big trucks.

An average of four trips per day is made by the Mack trucks, which means three changes of bodies during delivery hours, the fourth change being made at night for the early morning delivery. As it takes the warehouse men between two and two and a half hours to load the bodies, it will readily be seen that six to eight hours of idle loading time per truck is saved by this detached body method, a saving that pays for the extra expense of equipment in very few days.

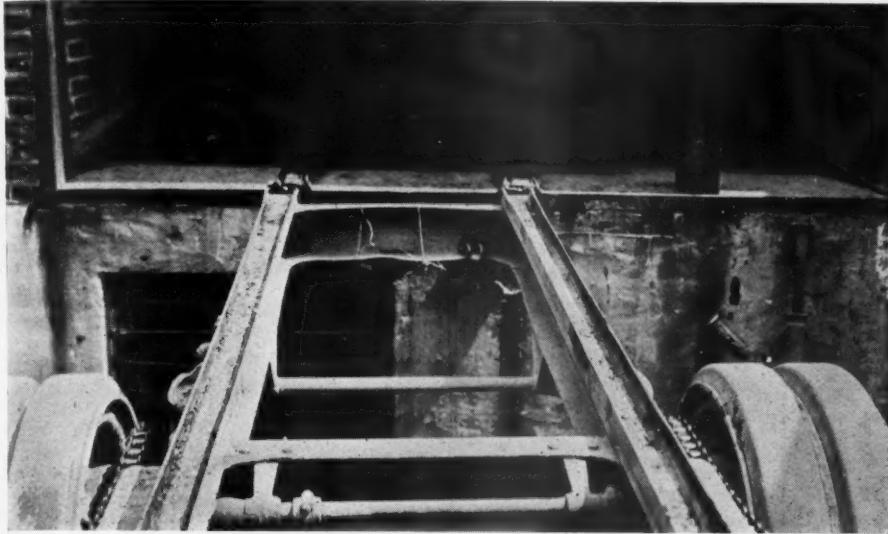
Accurate Cost System Kept by Means of Daily Reports

This same method of loading is used in the Dayton and St. Louis branches of the company, while in Columbus and Detroit the same result is obtained by using trailers and semi-trailers.

The Kroger company keeps a very accurate cost system on its trucks by means of daily reports from drivers on each truck. Each morning drivers are furnished with a "Driver's Time Sheet," which carries throughout the day a time record of every movement of the truck. As the manager of each store where the truck delivers goods must sign the sheet for the time of arrival and time of departure a close check may be kept on drivers' performances.

Figures covering a recent week's work of the five Mack trucks show the following interesting data:

Tonnage hauled outbound	488
Tonnage hauled, inbound	240
Average number of loads per truck for week	19.2
Average tons per load	6.5
Load miles per truck for week	124.5
Running miles per truck for week	195.4
Ton miles per truck for week	868
Cost of operation per truck per hour, including all overhead	\$2.28



Ready for the Loaded Body to Glide Into Place

With the truck backed in place there is a continuous track from 16 ft. back in the warehouse to the rear of the driver's cab on the truck. The space where the truck stands is so graded that the front wheels are several inches lower than the rear, thus maintaining the grade of the warehouse track.

When the truck backs up to the door with an empty body, a rope is fastened to the body and by means of a hand windlass operated by two men within the warehouse, the body is hauled out onto inclined track in warehouse, where it is blocked preparatory to loading.

The empty truck then backs up to one of the other doors, where a loaded body awaits delivery, and the body, when released, slides slowly and easily out onto

It has been found necessary before loading the trucks to place a jack under each side of the truck frame at the rear, to maintain a rigid track as the loaded body glides out onto the truck.

Truck Idle Only Fifteen Minutes for Loading

The entire operation of coming in with an empty body and starting out with a full load of between 8 and 9 tons usually



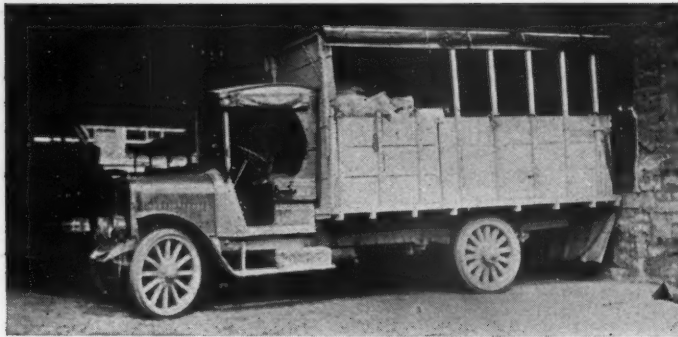
Slipping an Empty Body Back Into the Warehouse for Loading

This body contains a small consignment of goods returned from one of the stores

A Load of Inbound Merchandise at the Kroger Receiving Door

Note the grade. In addition to deliveries the five Mack trucks handle an average of three hundred tons of inbound freight weekly.





Many Rural Stores in Ohio and Kentucky Send Their Own Trucks Into the Kroger Warehouse for Groceries

This company figures its cost per ton mile at 16.4 cents. Kroger drivers are paid \$21.50 per week, with a bonus for the drivers making the best monthly records. This bonus is determined by a comparison of the drivers' records at the end of the month, and has worked out very satisfactorily in keeping the drivers up to their best work.

All truck repairs and replacements are taken care of in the company's own shops, under the direction of George F. Scheide, foreman, and George R. Stuntz, buyer and supply man. Five mechanics are employed the year 'round, and during

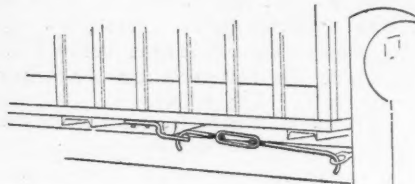
their spare time they are building a new truck of standard truck units that bids fair to be equal to most standard trucks when completed.

It is an interesting commentary on present-day haulage tendencies to note

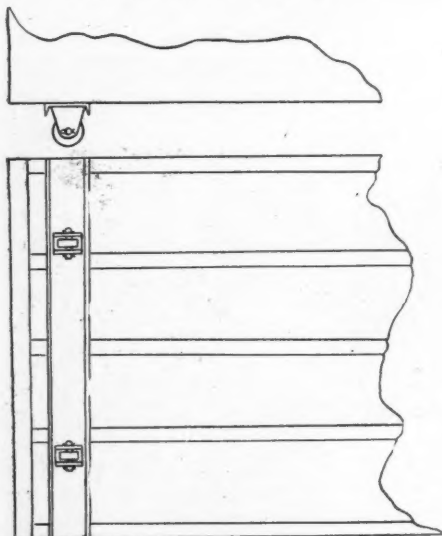


When Slight Repairs Were Necessary in the Differential, the Men Slipped the Body Off so the Repairs Could be Made

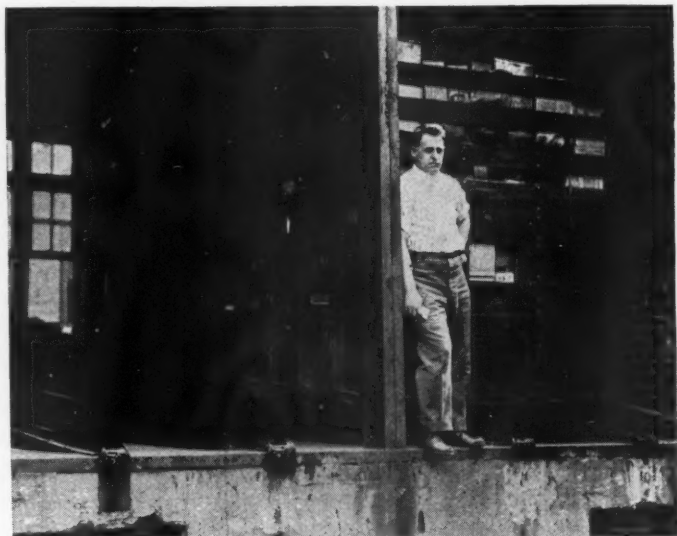
addresses are put down in their proper sequence, so that when a driver takes his load and is handed one of these sheets he has only to call at the first address shown, deliver that store's consignment, and go on to the next. The



Four Heavy Turnbuckles Are Used to Hold the Body in Place



An Underneath View of One End of the Body



Traffic Manager George Snyder, and One of the Loaded Bodies Ready for Distribution

that when the company had 86 stores several years ago 168 horses and mules were used for hauling merchandise. Now that there are 180 stores in the Cincinnati district only 33 horses are being used, the greatly increased business being handled entirely by trucks.

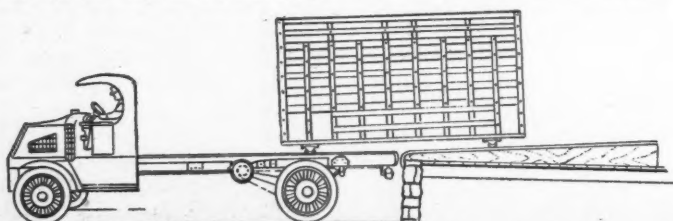
The method of dispatching trucks at the Kroger plant has been worked out by George Snyder, traffic manager, and is well worth studying. Every store in the district is assured a delivery of staples twice weekly, with the regularity almost of passenger train schedule. Regular sheets are made out for each delivery day in the week, containing the addresses of the stores to which deliveries are to be made on that day. These

truck bodies are so loaded that the consignment due the store farthest out on the route goes in first, this method insuring a gradual lightening of the load from the delivery point nearest the warehouse till all has been unloaded when the end of the route is reached.

All perishables and "hurry up" orders are delivered by the smaller trucks without regular schedule, save as one may take several orders of this type out along a certain route at one trip.

In addition to handling the supplies to the stores in the immediate Cincinnati territory, the big trucks make two to three trips a week to Middletown, 35 miles away, and to Hamilton, 25 miles off. Dayton is supplied with all less than carload shipments of groceries, etc., in the same manner, and all the meat that goes to the twenty Dayton meat shops run by the Kroger company is delivered by these trucks from Cincinnati, the trucks leaving Cincinnati at 4 in the morning to avoid the heat of the day.

The Kroger company has patriotically tried to get return loads for its trucks from Dayton, Middletown and Hamilton, but thus far has not met with success.



The Space Where the Truck Stands is Slightly Graded, Thus Maintaining the Grade of the Warehouse Truck

Colt-Stratton Starts Motor Express Between Stamford, Conn., and New York City

By C. P. SHATTUCK

WITH a view of obtaining operating costs and to work out in detail the steps essential to the successful operation of rural express, the Colt-Stratton Company, Dodge Brothers' New York distributor, is operating a motor express line between New York City and Stamford, Conn., serving the intervening points.

Primarily the object of the service was to transport the products of the farmers in Connecticut to the city, the establishment of a rural express, but the places served by the truck not only consume all farm products raised in the neighborhood, but depend upon New York City to a large extent for produce and vegetables. Consequently the rural end has been disappointing, but farmers interviewed by the Commercial Car Journal representative endorsed the express and some stated that it would be used by them as soon as production was increased.

Selling the Farmer

In connection with the farmer end it is interesting to note that the average farmer does not understand what the rural express means to him. They have a vague idea of its function, its advantages and method of operation, and many are decidedly conservative in that they wish to see "how the thing works out" before trying it.

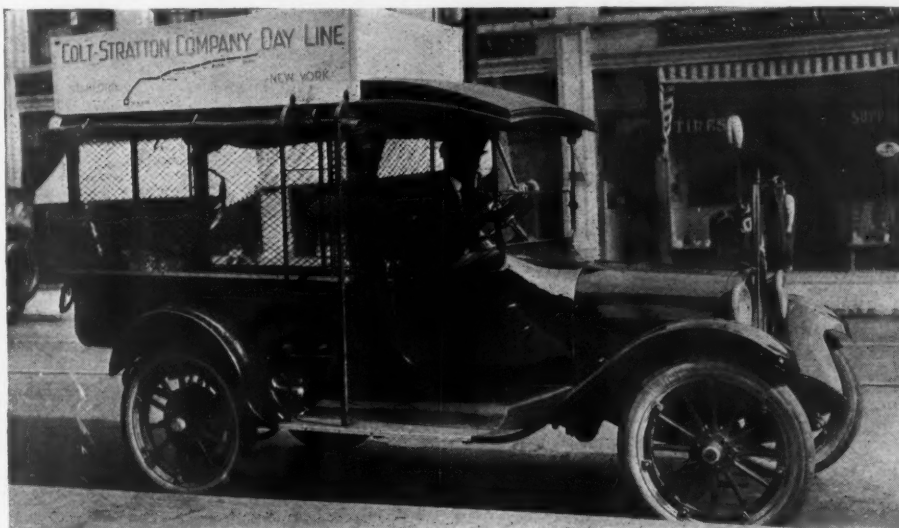
One of the handicaps under which the average operator of the truck works is that he is not qualified to "sell" the farmer the service; that is, the average driver is a driver, not a salesman, and cannot answer convincingly the questions asked by the prospect. Many farmers believe that because it is an automobile that it should drive up to the barn yard and pick up the load, and this class is hard to convince that they should bring their goods to the main highway or to some pick up station. These men forget that they transport to the express office at the railroad or to the freight station and, similarly, deliver from these points.

The fact that there is no prospect at present for the development of the farmer end of the service has not deterred the Colt-Stratton Company from continuing its experimentation as an express line. The truck, a Dodge commercial car, makes a round trip daily; that is, it leaves Stamford in the morning about 9 o'clock and reaches the service station of the company at 64th street about noon.

and 50 cents up town. The express matter is insured, the rates being practically 25 cents the 100 lb.

Express Lines Congested

At the present time the load from Stamford to New York City is light, consisting mostly of material shipped to New York by garages, repair shops, merchants, etc., who cannot wait for the



The Colt-Stratton Day-Line Express

The Colt-Stratton Company, New York City, is operating an express line between that city and Stamford, Conn., serving the intervening points. The merchandise is protected by wire screens and locks, and from the weather by tarpaulins. The top of the body is also utilized to carry light material, and access is by a ladder. Special irons on the body uprights are fitted for carrying long, light parcels, piping, etc.

After delivering and pick up work the machine returns to Stamford.

The truck serves the towns between New York and Stamford, averaging about 70 miles daily, Sundays excepted, operates on a time schedule, and its rates are slightly in excess of those of the express company. These rates are given in an accompanying table and in addition there is a shopping service by means of which the driver will purchase merchandise, etc., for a customer. A charge of 75 cents is made for below 14th street

express, the service of which is said to be very poor at present. The bulk of the shipments is from New York out and the dealers, garages, automotive equipment dealers, etc., are beginning to appreciate the day-line express, as it is called, as it enables them to obtain goods and material on the same day ordered, whereas by express the delay would amount to several days.

Developing New Business

The driver of the truck, J. J. Burke, begins his duties about 7 each morning, and for two hours makes his rounds in Stamford as well as canvasses for new trade. In his spare time he visits the farmers and preaches the gospel of the rural express, and occasionally employs a day trying to sell the transportation heads of companies in Stamford and places served by the truck. One of the results of this missionary work is the request of a large manufacturer for services of a 5-ton truck approximately three times each week for transporting goods to New York City. Possibilities along similar lines are being developed by the service.

200 POUNDS NEW YORK TO STAMFORD	New York	New Rochelle	Larchmont	Mamaroneck	Rye	Port Chester	Greenwich	Coseob	Stamford
New York	50	61	61	61	70	80	90	98	1.10
New Rochelle	61	50	50	50	58	70	70	98	98
Larchmont	61	61	50	50	61	61	66	69	90
Mamaroneck	61	61	53	50	58	71	63	73	88
Rye	70	61	61	61	50	61	61	61	70
Port Chester	80	70	61	61	61	61	50	61	71
Greenwich	90	80	70	61	61	61	50	61	61
Coseob	98	80	70	70	64	64	64	50	64
Stamford	1.10	98	90	80	70	64	64	64	50

The Rates Are Slightly In Excess of Those of the Express Company

At present the Dodge truck picks up and delivers on both ends of the trip, also in the towns served. The associate dealers of the Colt-Stratton Company act as representatives of the express line and serve as stations, giving out information to possible shippers and advertising the service.

Causes of Delay

The volume of business does not warrant at present the placing in service of a pick up and delivery car in New York. Such an arrangement would be advantageous in that the time of the express

truck would be conserved, or, in other words, the machine utilized simply for operating between the points served. It would eliminate the delays experienced by the driver in filling special orders or shopping. One of the causes of delay is the securing of parts from the various service stations in New York City and vicinity for the sub-agents in the territory served by the express line. Some arrangement should be made whereby the parts are secured or sent to New York terminal of the truck instead of compelling the driver to wait his turn to have the order filled.

the two rear cars are made to "track" absolutely with the first car, so that no difficulty is experienced in turning the sharpest corner. Another vital point is that the ignition systems of the two rear cars are connected by means of insulated wires to the switch clamp on the steering column of the first car and easily in reach of the operator of the "train." The two rear trucks are then put in high gear and the throttles set at a speed of about 20 miles an hour, or as fast as it is desired to run. The driver starts towing them with the power of the first car, and when he has reached the proper speed he throws in the ignition that controls the two rear cars, whereupon their motors start, this being caused by them being in gear and the rear wheels turning over the motor.

The operators of these trains have found that by having the motors of the three trucks or automobiles running it is possible for the train to make a grade on "high" that would be practically impossible for it to make in "low" were the first truck compelled to pull itself and the two machines in the rear. On the other hand, were the two rear cars left in neutral the problem of braking would be much more difficult than it is when the three trucks are connected in this manner. When the train starts a descent the brakes of the forward car only are used, and with the ignition shut off the motors of the two rear trucks turn over against compression and thereby furnish an effective brake. In a case of this kind, if the front car is run in low against compression, there will be no need of applying the brake at all on the average highway grade.

That this device is practical is proven by the fact that it is being put in daily use in the distribution of Maxwell trucks and automobiles in Southern California. After the delivery of a train of trucks or automobiles in this manner the coupling and operating devices are sent back to the factory by express, ready for another trip. A train of three trucks or autos can be completely equipped for an outgoing journey in less than half an hour.

Motor Trucks Delivered in Novel Manner

By ALBERT MARPLE

A NOVEL way of delivering motor trucks and automobiles from the factory to outlying points has made its appearance in Los Angeles, Cal. It was brought about by the shortage of freight cars for automobile delivery purpose.

This method of delivery was invented by W. H. Hinds, of Los Angeles, and by its use it is possible for one driver to operate three automobiles at one time. Experimentation proves that this new method cuts down the cost of delivering cars from city to city considerably. At this time it is being employed in the delivery of cars to customers within a radius of 300 miles.

Probably the principal feature about this invention is that by its use the car in front is not compelled to pull the two machines in the rear, the driver of the front car operating, by a novel arrangement, the working parts of the two rear cars at the same time as he does the one of the car in which he is sitting. In other words, the motors of all three cars are made to do their share of the work, so cars in the rear are not "dead weight" upon the leading machine.

The several cars are, in the first place, linked together by means of a special devised "trailer hitch." By means of this



The Control System Placed on the First Machine



The Device Can be Applied Equally as Well to Trucks as to Passenger Cars

Oakland Aids in Gasoline Conservation

A gasoline-saving poster has been prepared by the Oakland Motor Car Co., of Pontiac, Mich. Sixteen hundred distributors and dealers, identified with the sales of Oaklands and located in as many cities and towns throughout the United States, have received these posters with the request that they be displayed in a prominent place in the salesroom. Each dealer has received four additional posters for distribution to such prominent places as banks, postoffices, city hall or other municipal or public buildings. The poster is printed in colors and illustrated with views of aeroplanes, armored tanks, army trucks and military tractors in action. A series of hints for conservation of gasoline is printed on the poster.

A Romance of the Commercial Car Industry

Being the First of a Series of Articles Which Tells How Some Concerns Which Started Years Ago Achieved Success by Sticking to Certain Well-Defined Principles

By LEN G. SHAW

ONE man with a big idea and another who, having no fear for himself, lacked the courage to recommend a gamble to the local board of trade of which he was a leading member—that is the beginning of one of the most absorbing romances the automotive industry ever gave birth to.

What is more, this romance had its inception and development in a little inland town in a middle western state instead of a big industrial center. Which brings to mind that trite adage about building a better mouse trap than anyone else and having the populace wear a road through the forest fastness to get to your door. Only in this case it was motor trucks instead of mouse traps.

But to get back to the beginning of the romance, which was about as unromantic as could be imagined. For years Alma, Michigan, had been the possessor of a plant given over at first to the manufacture of wagons and later to gasoline engines for farm use. It was known as the Alma Manufacturing Company, and was backed largely by Ammi Wright, a long headed Scotch pioneer of the Michigan lumber districts, who laid the foundation for his millions when the state was in its industrial infancy.

It was proverbial with those who knew him that whenever Ammi Wright dipped into anything he always brought out a pot of gold. But there are exceptions to every rule—and the Alma Manufacturing Company never was a big money maker in spite of the fact that its products always were high grade. In spite of its

failure as an enterprise, not a stockholder lost a dollar, because the name and fortune of Wright stood behind it.

Back in 1910, when the company was struggling along, there came from Massachusetts a big, broad-shouldered human dynamo who had secured his early training in the bicycle business and graduated into the making of motor cars, as so many others did. He had been offered the position of superintendent. Most men would have taken one hurried look and departed for more promising fields, but Frank W. Ruggles was not of that type. It was a small town job, but he saw possibilities. He believed there was an opportunity in the making—and he determined to make it.

Although the industry was still young in the matter of years, motor cars had demonstrated their practicability, and there were many discussions on the advisability of turning the Alma plant into an automobile factory. It even went so far that a few experimental trucks were built, with Mr. Ruggles as the guiding spirit.

On one of the main corners of Alma was a drug store run by Charles G. Rhodes. Ruggles and Rhodes became fast friends, and the former used to spend most of his evenings in the back end of the apothecary shop, regaling Rhodes, between the times when the latter was doling out liver pills and dispensing ice cream sodas to thirsty Almatites, with the big idea that was firmly lodged in the back of his head.

"Night after night we would talk automobiles and motor trucks long after the store had closed," said Mr. Rhodes, in telling me of those early

days when the romance was budding. "At first I was only mildly interested, but after a while he got me going. The future he sketched for the automobile certainly was rosy, but his best efforts were a dull drab alongside what actually happened.

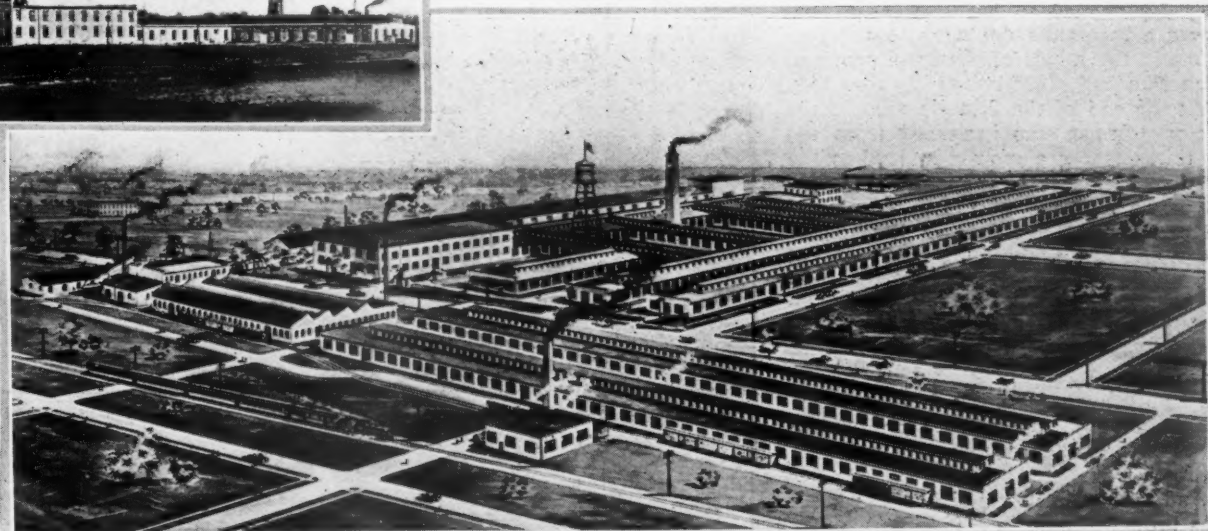
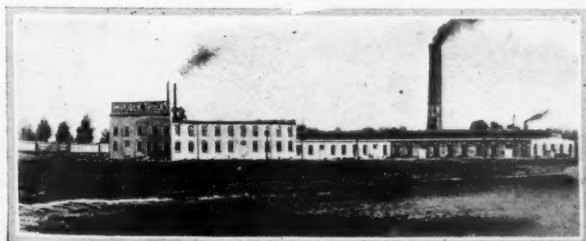
"The Wright estate still had large holdings in the Alma Manufacturing Company, but they didn't enthuse over the truck business, so Ruggles evolved the plan of having the Alma Board of Trade take over the proposition and exploit it as a semi-municipal enterprise.

"It looked good as he explained it to me, but do you know I hadn't the nerve to put it up to the Board of Trade, of which I was an official, because it seemed too much of a gamble—and I figured on running a drug store and retaining the good will of the people for a long time after that," confessed Mr. Rhodes.

"I had a little money—not much. So did a few of the other fellows who were in on the plan. I was willing to risk something, so it was decided that an experimental truck would be built, Ruggles believing that to be the best field.

"I'll never forget the night that Ruggles drove down to my store on the seat of the first truck, with its shiny coat of red paint. That settled me right there, I'd have mortgaged every prospect to raise money. I didn't know whether it was a good truck—but it certainly looked great, and I had enough confidence in Ruggles to know that if he turned it out it was as good as anybody was making.

"The upshot of it all was that we organized the Alma Motor Truck Company, with a capital of \$50,000, of which we managed to scrape together about \$8000 in real money. That was July 1, 1913. Francis King, a Chicago capitalist who had been in Alma some years, was the first president; Mr. Ruggles was



The Old and the New Plant of the Republic Motor Truck Company



Republic Trucks Ready for Test

made general manager; George W. Moore, a real estate man, was treasurer, and they made me secretary. Later Thomas A. Burt was made vice-president. There were a few other stockholders.

"We took over the old plant of the Alma Manufacturing Company, and there were those who wondered what we would do with all the 15,000 sq. ft. of floor space at our command. We did rattle around for a while, but not long. Today we have a half million feet of floor space, and we've had trouble in building fast enough to keep up with manufacturing demands."

In the first six months of its existence the concern, which in September, 1914, changed its name to the Republic Motor Truck Company, built fifty-four trucks. It not only built these trucks. It sold them, and could have disposed of many more, because the trade was quick to discover that they were designed for service.

It was not always easy sailing. Limited capital necessitated close buying. There were mechanical problems that had to be overcome, for building a successful motor truck is not an over night job even for so good an engineer as Mr. Ruggles proved to be. But there was never a moment's doubt as to the outcome in the minds of the little group of men who had pinned their faith on him.

At the end of the first six months the factory output was increased from ten to thirty trucks a month, and when the first year closed the company was able to pay a dividend of 100 per cent and have a comfortable surplus left in the treasury. Eight months later it repeated the dividend performance, and its earnings ever since have been on a decidedly satisfactory scale. Last year the volume of business amounted to \$18,000,000, and from the modest initial output of 54 trucks the manufacturing facilities have multiplied until the sixth year of the company's existence saw 18,000 trucks go forth from the Alma plant.

And the end is not in sight. This truth was brought home in a forcible manner as we walked over the acres of floor

space making up the great group of factory buildings on the outskirts of Alma, and saw how trucks were being rushed through under the progressive assembly plan; took note of the mountains of parts piled everywhere, and the long string of trucks being loaded into freight cars or boxed for shipment to all parts of the world.

A little way off one entire building that a few years ago would have been considered a tremendous plant of itself was given over to the production of army trucks, having been diverted from its accustomed uses to speed up war work. Even then there were several score of brown covered trucks ready to be loaded and driven overland to the coast for overseas service, and others were being added to the waiting list just as rapidly as skilled mechanics could put them together. And there are more than 1500 of them on the payroll right now, as against the original handful only a few

years since. No wonder the Republic advances the unrefuted claim to being the largest motor truck factory in the world.

Why this success? It is summed up concisely in the doctrine of General Manager Ruggles.

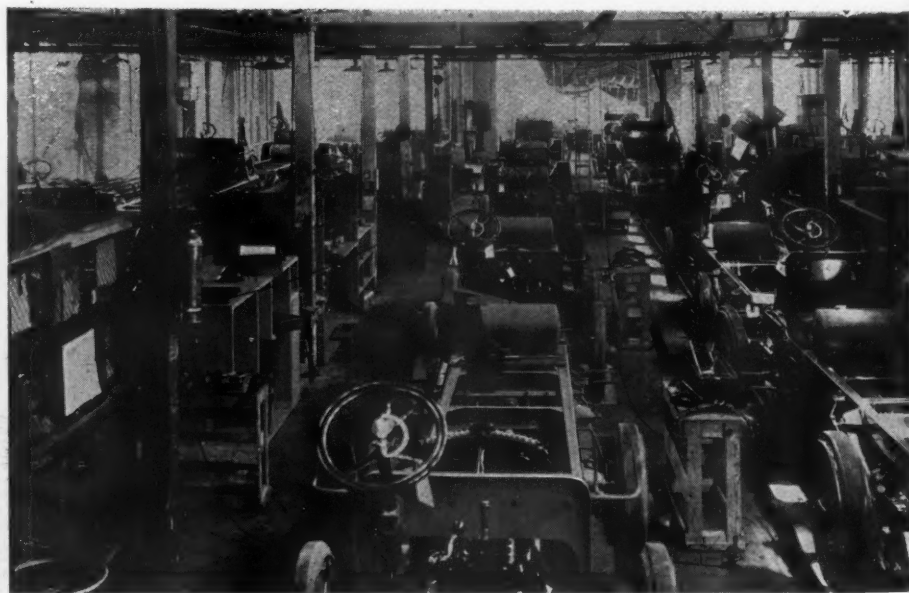
"If you furnish a product for which there is a universal need and that will give good service at a reasonable price success is bound to come."

The initial lot of trucks incorporated the best mechanical principles of that time with improvements originating in the Republic engineering department. Many of them are running yet—and giving the best of satisfaction.

But there have been other factors contributing just as much to the success of the Republic Motor Truck Company, even if less is heard of them. The best truck ever made will not sell itself, at least in any considerable numbers. Mr. Ruggles and his associates realized this from the outset. They built up a selling organization that reaches wherever civilization has made its impress, and they backed a sterling product up with a service system that made satisfied owners, enthusiastic boosters, who, after all, are the best salesmen obtainable.

The Republic company has always shown the greatest solicitude for the welfare of its employees. The offices and factory buildings are models of sanitation. There is plenty of light and air, and recreation grounds nearby suggest a concern for the physical well being.

Today Alma is one of the busiest spots on the world's industrial map. It is the mecca for truck men from all over the world, and the volume of business transacted in this prosperous little city would make many a larger municipality envious. And all because a little more than five years ago a big, far-sighted engineer with a vision climbed aboard a shiny red truck and trundled down the main street of Alma. Frank W. Ruggles's dream has come true.



Part of Shipment of Fifty Republic Trucks to Japan
Showing progressive assembly system

Latest Developments on the Store-Door Delivery Plan

By C. P. SHATTUCK

NEW YORK CITY is noted for the congestion at its various docks and railroad terminals, a condition that is to be rectified by what may be deemed revolutionary methods by those accustomed to the antiquated methods prevailing for the past half century or more, but merchants and manufacturers as well as the truckmen welcome the change, which is to be store-door delivery, a cessation of utilizing the docks and terminals for storage purposes.

Nine Committees Appointed

To this end Interstate Commerce Commissioner James F. Harlan has been organizing the various interests, the merchant, the manufacturer and the transportation agents, and out of the meetings held eight different committees resulted, embracing approximately 60 men. These committees have been and are gathering a mass of data relating to warehouses, rates, zoning, unit pier organization, pier operations, receipts and forms, registration, collections and printing. Some were appointed immediately after the general conference held on July 15, when the program was made public, and others were appointed after the teaming and trucking conference of August 2.

These committees met again on Friday morning, August 16, at the Waldorf-Astoria Hotel, and several problems were thrashed out, as well as progress reported by others. The committees on zoning, unit pier operations, receipts and forms and collections reported progress, but these bodies have many problems to solve and were not prepared to submit definite reports.

The committee on rates reported that letters had been sent to truckmen and that rates were being obtained and dealing with a lengthy list of commodities. The committee of warehousemen is preparing to store a large amount of goods, and control of the warehouses is to be invested in the drayage director, who has not been named as yet.

The committee on unit pier organization, composed of the different trucking interests, is a preliminary one and will probably take over the work of organization at each pier, etc. It is stated that in connection with this work that only 5-ton trucks will be utilized at first, as conservation of room is desired.

Trucks Will Carry Special License Plates

Trucks engaged in this service will be registered, carry what amounts to Federal license plates in addition to the State numbers, and this registration will be under the jurisdiction of the drayage director. There will be no discrimina-

Committee on Warehousemen

William E. Halm—New York Dock Company, Chairman.
W. H. Gibson—F. C. Linde Co., Vice-Chairman.
W. C. Crosby—Fidelity Warehouse Company.
E. J. Jarvis—Jarvis Warehouses, Inc.
A. C. Pouch—American Dock Company.
W. F. Oatman—Mercantile Warehouse Company.
F. S. Phraner—Baker & Williams.
W. C. Reid—Furniture Warehousemen's Association.

Committee on Rates

Arthur G. McKeever—Ajax Trucking Company.
J. McDonald—P. H. Keahon & Co.
Isaac Goldberg—J. Goldberg's Sons & Co.
C. F. J. Fleck—Meade Transfer Co.
Louis Kuhst—Kelly & Buck.
George Daniels—Daniels & Kennedy.
B. Goldman—B. Goldman.
Samuel Mangam—Herrschaft & Mangam.
Halvey Bros.—R. L. Smith.
E. R. Lowe—E. R. Lowe Co.
G. Kuhle—G. Kuhle Trucking Co.
Paul Viane—Paul Viane.
Matthew Lowden—J. M. Lowden, Inc.
Harold Jackson—Jackson Brothers.
Edw. F. Kelly—Edw. F. Kelly.
J. Reardon—P. Reardon.

Committee on Zoning

Hon. Travis H. Whitney, Chairman.
W. J. Tripp—New York Central Railroad.
C. F. Walden—Meade Transfer Co.
J. J. Byrne—D. L. & W. Railroad.

Committee on Unit Pier Organization

J. Reardon—P. Reardon Co.
A. J. McKeever—Ajax Trucking Company.
Isaac Goldberg—J. B. Goldberg & Sons Co.
E. F. Kelly—153 West Street.
John White—202 Franklin Street.
C. F. Walden—Meade Transfer Company.
Edw. Lowe—E. R. Lowe & Company.

Committee on Unit Pier Operations

C. J. Fleck, Chairman—Thomas McLarnon Co.
P. L. McDonald—P. H. Keahon, Inc.
H. B. Simpson—Simpson Trucking Company.
Robert L. Smith—Robert L. Smith.
Joseph Gilroy—D. Gilroy & Sons.
John J. Dunn—618 Water Street.
George Daniels—Daniels & Kennedy.

Committee on Receipts and Forms

George Daniels—Daniels & Kennedy.
L. Kuhst—Kelly & Buck.
S. A. Mangam—Herrschaft & Mangam.
J. Witkin—J. Witkin Trucking Company.
J. K. Orr—Thomas Orr Trucking & Forwarding Company.

Registration Committee

Harold Jackson—Jackson Brothers.
John Halvey—Halvey Brothers.
Jos. Gilroy—D. Gilroy.
Paul Viane—39 Beekman Street.
Arthur G. McKeever—Ajax Trucking Co.

Committee on Collections

William Simmons—Southern Pacific Lines, 165 Broadway.

R. B. Fallock—H. B. Claflin Co.
Arthur G. McKeever—Ajax Trucking Co.

Conferees of this Committee representing shippers are J. C. Lincoln, Merchants' Association, and W. J. Banham, Traffic Club.

Committee on Printing

Arthur G. McKeever—Ajax Trucking Company.

tion shown; that is, the owner of one or two trucks may enter the service, and will receive the same privileges, etc., as the large trucking interests, provided he is reliable. The registration plan will include means for safeguarding the shipper.

In addition to the Federal plates or numbers, it is proposed to attach a decalcomania to the dash of the truck showing that the machine is in the store-door delivery service.

Commissioner Harlan is pleased at the cordial co-operation of the trucking interests and shippers serving on the various committees. Many of these men have given their entire time to accumulating the mass of data essential to successfully launching such a big movement, and which requires extreme care in placing in operation.

A meeting is to be called in the near future by Commissioner Harlan, at which the reports of the various committees which have completed their labors will be read and discussed. Several of the reports have been printed, and these will be taken up at the conference. The findings of the committees are not likely to be final, as new problems are arising, and these and many other small details essential to the successful launching of the movement must be carefully considered if store-door delivery is to replace the present methods.

"Paper" Wholesalers Revealed

The investigations conducted by the committees reveal the interesting information that some purported large wholesale companies supplying a large number of retail stores in and around New York have but offices and have been utilizing the piers and terminals for storehouses. These concerns, it is stated, and others of similar caliber, are largely responsible for the present congestion. Many smaller concerns, practically individuals, have been emulating the example of these "wholesalers."

It is amusing to note that the most bitter complaints received by Commissioner Harlan have been from this class. Investigation of these "companies" revealed the condition above referred to, and it would appear that the letters have been boomerangs, in that persons or concerns without stores or warehouses are not to be allowed to use the piers for storage purposes and block the wheels of progress.

Drivers Contribute to Congestion

The use of registered trucks and the examination or test to be employed in licensing, etc., will eliminate what the pier authorities term the "boob" driver. Many of these do not know how to

obtain their receipts from the cashier, how to locate their goods, etc., adding to the confusion. Others of the same class "forget" what they have apparently learned, so that when they come for another consignment a week or so later they have to be again instructed by the pier police, who stated to the representative of the COMMERCIAL CAR JOURNAL that the elimination of the "boob" driver and the persons who have been using the piers for storehouses will make the store-door delivery plan a success.

Contracts Placed for A and AA Trucks

The following contracts for Class A 1½-ton trucks are now being filled by the following companies:

White Co., Cleveland, O., 8000.

Peerless Motor Car Co., Cleveland, O., 3000.

Packard Motor Car Co., Detroit, 3000.

Pierce-Arrow Co., Rochester, N. Y., 3000.

On August 16 the following contracts for 5000 AA trucks were placed by the Motor Transport Service:

J. C. Wilson Truck Co., Detroit.

Velie Motors Corp., Moline, Ill.

On August 16 contracts were placed by the Motor Transport Service for 5000 AA trucks. The AA truck is an adaptation of the G.M.C. ¾-ton truck No. 16. The following concerns were awarded contracts:

J. C. Wilson Truck Co., Detroit.

Velie Motors Corp., Moline, Ill.

Dort Motor Car Co., Flint, Mich.

Elgin Motor Car Corp., Chicago.

Standard Motor Truck Co., Detroit.

Lexington Motor Co., Connersville, Ind.

Auburn Automobile Co., Auburn, Ind.

Hupp Motor Car Co., Detroit.

General Motors Truck Co., Pontiac, Mich.

Saxon Co., Detroit.

Trucking Association Formed in New York

The Interstate Motor Trucking Transportation Association, Inc., was formed recently at New York City, with a view to developing and extending the industry of trucking by long distance regular freight and express routes. Ramon V. Williams, president of Williams Shipping Agency, is president of the association, and O. E. Heckman, president of a company which operates trucks between New York and Wilmington, and as far west as Wilkes-Barre and Allentown in Pennsylvania, is vice-president. The association will aid the movement for securing the establishment of a transportation terminal in each city, the co-operation of firms in the collection and delivery of merchandise in the cities, the maintenance of co-operative service stations and the betterment of rural express systems.

New Jersey Highways Transport Committee Organized

Organization of the New Jersey State Highways Transport Committee along the lines mapped out by the Highways Transport Committee of the Council of National Defense was effected by Regional Chairman C. A. Musselman at a conference held at Newark, N. J., September 5, with the chairman and those who have been directing the activities of the Return Loads Bureau of the Motor Truck Club of New Jersey.

The organization plans, which include the dividing of the State into five districts, field and executive sections, etc., as well as administration and operation, were explained in detail by the Regional Chairman, and the officials of the Return Loads Bureau pledged their active support to the carrying out of the policies of the Highways Transport Committee.

Much of the detail work of organization has been completed by the New Jersey organization, it having compiled a list of the owners of commercial vehicles in the State, etc. The chairman of the State Highways Transport Committee will appoint the chairmen of the districts, who will in turn organize district committees.

Gear Manufacturers Will Meet

An interesting program is being arranged for the semi-annual meeting of the American Gear Manufacturers' Association, which will be held at the Onondaga Hotel, Syracuse, New York, September 19, 20 and 21.

A portion of the program has been announced as follows:

"Priority," by Charles A. Otis, of the Priority Committee.

"What is the Possibility of Women Becoming a Permanent Factor in the Gear Industry?" W. H. Diefendorf.

"Trade Acceptances," C. E. Crofoot.

"The Outlook of the Steel Supply," C. E. Stuart, Secretary and Treasurer of the Central Steel Co., Massillon, O.

St. Louis Return-Loads Bureau Aids Shippers

The Return Loads Bureau at St. Louis is conducting investigations with the definite aim of getting at the root of the trouble experienced by shippers in securing return loads. It has been found that the chief drawback to shipments by truck lines has been the failure to observe the time card. The bureau has set about remedying this condition and is also establishing warehouses in the smaller cities, where a bill of lading can be issued. These activities are being conducted through the traffic department of the Chamber of Commerce. H. R. Brashier, assistant to Traffic Commissioner Coyle, is in charge of the warehouse work.

Exports to Holland and Denmark Permitted

The War Trade Board announces that passenger cars, bicycles, motorcycles and spare parts, excepting tires and accessories, will be considered for exportation to European Holland and Denmark. A person wishing to import these articles into Holland must obtain import certificates from the Netherlands Overseas Trust Co. He must then notify the prospective exporter of the serial number of the certificate. The exporter must then apply to the War Trade Board for an export license. All shipments to Holland, except those consigned to the Government of the Netherlands, must thus be consigned directly to the Netherlands Overseas Trust Co.

Shipments to Denmark may be consigned to an individual. An import certificate must be obtained by the prospective importer from the Merchants' Guild of Copenhagen or the Danish Chamber of Manufacturers. The exporter in the United States is then notified, after which a license is secured from the War Trade Board.

Canning Plant to be Mounted on Trailer

The American Food Conservation Co. is building portable canning-drying plants on trailers. A fifth-wheel attachment joins the trailer to a 2½-ton truck. Germany built and operated enough of these plants in 1917 to conserve one-fourth of her total vegetable production. These plants will be used in food conservation work in this country, and will work in co-operation with various farm bureaus in the South.

War Emergency Bulletin No. 4

Subject: Ship by Motor Truck

Prompt service at any price is preferable to slow—or no—delivery at a low rate. The door to door delivery of motor trucks for distances up to 125 miles a day, and sometimes more, gives a service that cannot be duplicated on the steam roads with overburdened cars and tracks and congested terminals.

Inasmuch as the railroads now have more of the dividend-paying long haul shipments than they can take care of, it is not only enlightened business judgment, but pure patriotism for shippers to use motor trucks for short haul freight, which motors can best transport and which has always been unprofitable for the railroads.

Truck rates today are not high for the service rendered. Please prove this by phoning Return Loads Master Bureau, State House, Union 2360, or Providence Bureau, Chamber of Commerce, Union 7800, regarding the next quick delivery that you want to make anywhere in New England or south to Philadelphia.

The Above is a Reproduction of a Letter Sent Out by Geo. E. Leadbetter, Manager of the Return-Loads Master Bureau, of Rhode Island.

(See article on following page)

Spreading the Rural-Express Idea in Tullawanda

By C. P. SHATTUCK

HEN MEYERS, agent for the Invincible line of trucks in Tullawanda, sat in his private office making figure eights on his scratch pad. To his office employees and salesmen this was a sign that he was exercising his brain cells with some new sales scheme. Bill Spooner, the star salesman, perceiving that his employer was wrestling with some weighty problem, decided to postpone his conference. As Bill was making his exit from the office his employer straightened up, and, glancing about, noted his best salesman pussy-footing to the street door.

"Hi, Bill," said Hen. "What do you know about Rural Express?"

"Not a thing, except that it's a scheme to help the poor farmer. Why?"

"Wrong, Bill. It's to help Uncle Sam, city folks, the farmer and the truck dealer, with accent on the truck dealer. Bill, we're going to start a Rural Express, and you're going to—"

Bill Wasn't Interested

"I'm not," interrupted the star salesman, who could afford to be independent, because the Mote-A-Truck would welcome him with open arms. "I absolutely refuse to mingle with this scheme of yours, Hen. Now, if I were selling Invincibles I would listen to reason. Rural Expresses mean nothing in my young life, and—"

"Bet you I sell you on the scheme," snapped his employer. "Make it the dinners."

"You're on," replied the salesman, flopping into a chair. "Now sell me."

The man who had sprinkled Invincibles throughout the county reached into his desk and brought out a box of his favorite smokes and tendered his star salesman the box. When the cigars were drawing good, Hen remarked: "By the way, Bill, I had lunch with Smith, of the Mote-A-Truck. He said you were a corker selling the city trade, but when it came to putting them over outside of the city you were not there, that his man Jenks had you beat a mile, but let's get down to this Rural Express idea."

"Here's the plan," and, reaching for a county map, the Invincible agent choked off what would have been a vigorous denial of his best employee. "You will note, Bill, that I have marked with red circles the greater part of the eastern section of the county. Now, the object of the Rural Express is to give the farmer transportation for his products to the city by motor truck. There is nothing doing in the farming line in the west, north or south, so—"

Setting the Trap

"You're wrong," interrupted the salesman. "The West and South are alive with farms. Why, that section," point-

ing to the map, "produces more apples than any five counties in the State, while 15 miles to the north is the greatest line of grape growers ever. Say, Hen, why don't you get out and get acquainted with your own country? I'm surprised, and you a native. You make one big mistake if you don't include a radius of 40 to 50 miles in your plans."

"Perhaps you're right, but Smith says—"

"Aw, never mind Smith. I guess I know this county and the people in it. That's why I put the Invincibles over."

"Yes, I know, but don't you see, Bill, you couldn't run trucks over those roads, and, besides, there isn't a man in the county who could get a farmer in that territory you speak of to look at a truck, let alone ship his products by truck. I guess we will have to pass up that territory."

"I should say not. Why, I'll bet Smith or you that I can take a truck and get any farmer you will name to let me truck his goods. I'm just chesty enough to make it dinners for the bunch, and—"

"You're sold, Bill," snapped the boss. "I've sold you the Rural Express idea, and the dinners are on you," and he chuckled as Bill realized that the trap had been sprung.

"Well," said the salesman with a resigned air, "suppose you let me in on the details, but it was rather a mean way of taking me in, at that, Hen."

"It's like this, Bill. I have gone over the plan in a rough way and know that by starting a Rural Express, operating it ourselves, I mean, we can prove that the plan is thoroughly practical and that money can be made. In other words, a proper capacity truck, operated economically over a good route, can be made to pay the purchaser of the truck a handsome return on his investment."

"Some Job," Bill Says

"Our first step, and by ours, I mean yours and mine, Bill, is to take a little time off with a car and explore the territory for 40 or 50 miles around. We'll lay out certain sections for each trip and go over it with a fine tooth comb to ascertain what is raised, when harvested or ready for market, how the stuff has been sent to market, how shipped, costs, road conditions, what carriers are used, etc. This is a diagram I have worked out on the proposition. Just run it over while I phone, will you, Bill?"

Under the head of Rural Express was the following:

Radius of operating lines and lengths of hauls.

Condition of highways and if open in winter.

Type of body and capacity of chassis.

Number of stops and pick-ups.

Time taken for trip, stops and pick-ups.

Products raised and time marketed. Amount generally shipped and possibilities.

How shipped at present and length of haul to terminal.

To whom shipped or consignees.

Carriers operating in territory and rates.

Time required for products to reach markets.

How should goods be insured if insured.

Merchants in cities supplying farmers with goods.

Cost of operating truck.

Selling the service to the farmer and merchant.

"Some job, some job," remarked the star salesman. "Say, Hen, when do you expect to get all this dope. Why, the war will be over by the time you get it half finished."

The man who thrived on competition and sales problems smiled. "Why, Bill, I am surprised at you. It's not so bad when you analyze it. As for the radius and lengths of the hauls, that will be largely determined by the territory, products raised and volume transported. It will develop, so to speak. We may start by running only 25 miles out from Tullawanda. It depends how many farmers we sell on the first line. The type of body is easy, as you know, and as to the capacity of chassis, we will make it 1-ton with pneumatic shoes for a starter—"

"Better use the 2-ton," interrupted the salesman. "The more we carry the better we put it over. Say, we could use a 5-ton for the apple and potato sections."

"True, but let's get our light stuff started. We'll attend to the heavier goods later. We want to keep to the express idea, at least at the start, and the 1-ton with pneumatics will make for quick service. As to stops and pick-ups, we know the speed of our 1-ton Invincible, and we can get a pretty good line on the time for stops by using some of our data sheets on trucks used in similar work. This supplemented with what the factory can supply, will give us a working schedule at least."

"Not going to operate on schedule, are you? Can't be done."

"Oh, yes, it can, approximately, for you must realize, Bill, that a farmer coming to the main highway will not want to wait several hours for the truck to come along."

"What's the matter with arranging with the stores and even some of the small garages to act as receiving stations where we could pick up the stuff?" suggested the salesman.

Bill Waxes Enthusiastic

"Fine idea. Make a note of it, and we will look into the plan when we go over the territory. As to item of products raised and when ready, we can get a line on them at the wholesale produce dealers, from the farmers themselves, and from the agricultural sharps, the State and colleges. County agents will prove helpful, also. When we are getting the data we will ascertain how much is shipped at present and if the amounts could be increased with a store-door delivery which our express is. It should be an easy matter to find out from the same sources of information where the farmer hauls his stuff; that is, to what terminal and the length of the haul. The produce dealer and farmer will yield the dope we need to know as to the consignees."

"The matter of rates should not be difficult. The trolley lines or railroads have printed matter giving weights, classification, prices, etc., and from different sections or lengths of haul, and we do know that they move very slowly and that perishable goods cost money to ship these days and frequently do perish."

"Going to cut under the trolleys and express?" asked the salesman.

"No. No cutting. We will get the same and possibly more, because we will combine the cost of transportation, handling and delivery, and save two handlings with the truck. Perishable goods will bring better prices for the shipper because the consignee will receive them in first-class shape. And the public will be better served."

"Fine and dandy for the trip in, but how about a load coming back?" asked the salesman.

"I do not expect the out trip to be heavy at first, but I believe we can build the business. The farmer buys lots of materials from the city, and his wife and family have orders for shopping, etc., and—"

"What? Go shopping for women! I can see a driver asking a girl for five yards of 'mussileen,' or whatever you call it. And some articles needed might be as embarrassing for the shopper as the sales girl. You're wrong for once, Hen. Better cross that item out."

"Not so, Bill. The driver can't afford to waste his time shopping. What we will do is to have the order given the driver on his in trip. The order will be sent by our office to the store, or telephoned, and the goods will be delivered to us. If anything is required in a hurry, one of our girls can do the shopping. Of course, there will be a slight extra charge."

"As to selling the service, I was thinking of stealing Smith's salesman. Smith says he is a wonder, and—"

"Not on your life," broke in Bill. "If there is any selling I am it. You just turn me loose with the line of dope, and I will have every farmer just crying for the Invincible Rural Express service to

Tullawanda. We don't need any Smithsonian institutes."

"How you going to do it, Bill?"

"Well, Hen, you've got to advertise—do a little publicity work. Get out some snappy posters or cards to be stuck up in all the stores along the route, and send a red-hot patriotic letter to the farmers, telling them what we propose to do. Then I will follow up with my line of talk. Get the papers to boost for Rural Express. Make everybody boost. Get in touch with the granges, and, if need be, you go up to their meetings and give them a talk on farm-to-table, via the Invincible truck. Get after the county agents to boost the plan, and do not overlook the professors at the agricultural colleges and the heads of departments telling the farmer how to make two blades of grass grow where one grew before. Get all the Government dope, printed matter, and run some real advertising in the papers, and—"

"Thought you wouldn't mingle in this Rural Express, Bill?" interrupted the boss. "Strikes me you are oversold. You won't make much money selling the farmers."

Indiana is Pushing Rural Motor Express Development

Indiana's State Council of Defense Highways Transport Committee is getting under way in its campaign to develop rural motor express routes and return loads bureaus all over the state, and during the recent state fair not only had a big exhibit covering the two motor truck activities, but also distributed thousands of bulletins to fair visitors as educational propaganda.

I. D. Strause, of Ligonier, is chairman of the committee, and much of the active work of organization and education is being done by W. W. Winslow, who maintains offices in the State House at Indianapolis. Sixty counties have reported active organization in progress, and every county in the state has its County Highways Transport Committee from which results are expected in the near future.

Many meetings have been held, and more are being planned to arouse interest in rural motor express, and as roads are, in the main, excellent in Indiana, and the rural districts thickly settled, there is every reason to believe that within a few months many new routes will be in operation.

In Indianapolis the rural motor express will be worked in conjunction with the return loads bureau, which is, at present, being managed by George Winders, of the Van Camp Packing Co. A shipping depot is maintained at the stock yards, and it is the intention later to spend about \$2000 on a down-town central depot to which merchants will deliver their outgoing merchandise for motor truck distribution in the rural districts. The Indianapolis Merchants' As-

"No, but when we get the dope on the costs of the express I am going to sell a lot of Invincibles, and this county will be just alive with Rural Express and other lines. Why, if we put this thing over it will turn up more prospects for trucks among the farmers than page ads in the Tullawanda Gazette. Why can't we interest some local people in hauling the heavy stuff, big loads, such as potatoes, etc.?"

"Good idea; make a note of it. When do you start on the Rural end, Bill?"

"Right away—this very minute."

"Fine," replied the Invincible agent, "but how about those dinners you lost when I sold you on the idea? I move we eat at your expense."

"Motion seconded and carried," shouted the salesman, starting for the door, "but how about working in the tractors along with this Rural Express line?"

"One thing at a time," replied his employer. "The Rural Express is to be the entering wedge of our tractor sales campaign, which will be forthcoming when we have put the Rural Express on the map in this county."

sociation has signified its willingness to lend its aid materially in establishing lines.

In connection with the return loads idea throughout the state, there is now in operation a plan whereby merchants in the various cities issue to truck owners whom they know to be financially responsible, reliable and efficient, authorization cards on the strength of which merchants in other cities give these truck owners return loads knowing that the loads will be handled properly.

A feature of the return loads bureau exhibit at the state fair was two trucks, one full and one empty, to bring out the necessity in these times of loading trucks to their capacity at all times. "Save a freight car for Uncle Sam" was the card that called attention to these trucks.

To Establish Return-Loads Bureau in Milwaukee

Industrial plants in the neighborhood of Milwaukee are interested in a rural truck delivery, which will be established in the near future. A. J. March, president of the Milwaukee Dealers' Association, has been appointed Wisconsin representative of the National Motor Truck Committee of the National Automobile Chamber of Commerce and is making every effort to bring the haulage and transfer companies of the state together. He is also trying to interest a number of Wisconsin's leading industrial associations in a plan to organize a substantial rural route and return load organization. Headquarters for this organization will be in Milwaukee with branch depots at other manufacturing and distributing points in the state.

Highways Transport Committee of New York Meets at Albany

Discusses Snow Removal Problems. To Educate Shippers to Value of Return-Loads Bureaus. State Divided Into Five Districts

THE Highways Transport Committee of the New York State Defense Council, which body was temporarily organized July 16, is promulgating plans for the launching of a State wide campaign to obtain the support of a bill in which will be written an appropriation sufficient to keep the main travelled highways free from snow during the winter months.

An appropriation was made at the January session of the legislature but it is held to be insufficient to keep open those roads essential to the transportation of material which cannot be carried by the railroads or other common carriers.

To Use Snow Fences

The committee, which consists of eleven members, met at Albany on August 21 and, in addition to perfecting the organization thoroughly, discussed ways and means of removing snow from the highways. Edwin Duffey, State Highway Commissioner, outlined conditions obtaining during the winter months and pointed out that it would require the co-operation of the State to keep the highways open to travel. It is proposed to utilize snow fences in those sections where the snow drifts badly. After a most thorough discussion it was decided that the county committees ascertain what highways would be essential for winter traffic and make a report. Plans will then be made for laying out a system of highways that will serve the interests of all users of the roads, including horse drawn equipment as well as motor trucks.

The roads selected will be those serving as feeders to the main highways and particularly in the vicinity of factories

manufacturing munitions, etc. It is proposed to enlist the services of all available persons in the various counties to aid in keeping the roads open, and throughout the campaign the keynote is to be patriotism.

Among the plans discussed was one for educating the user of the highways to their proper use. It is proposed to erect signs requesting drivers of motor cars and other vehicles to refrain from following a path or rut in the snow, for it was pointed out that the greater part of the damage to the New York highways last winter was caused by this procedure.

The use of the Erie barge canal connecting Buffalo with New York City as a means of relieving freight congestion was discussed, as were the roads acting as feeders to the terminals.

Meeting of Organization

The committee of eleven is divided into two sections, a field and an executive, the former consisting of five members who have charge of the five districts into which the State is divided

New York State Defense Council

Highway Transport Committee

Peter G. TenEyck, *chairman*

F. E. Foster, *secretary*

Frank M. Barcus	E. A. Fletcher
M. C. Burritt	H. R. Odell
Edwin Duffey	John A. Mathews
George C. Diehl	E. Vincent Stratton
D. C. Fenner	Gen. W. W. Wotherspoon



Map of the State of New York
Showing division of field section August 10, 1918.

as shown by the accompanying diagram. In addition there are county committees, these representing sixty-two members. This organization meets with the requirements of the Highways Transport Committee of the Council of National Defense, and those to be organized in other States will be along the same lines, as uniformity is desired. These committees are to undertake a considerable amount of what may be termed advance work such as "field equipment," a census of trucks and passenger cars in each county, factories, shippers, etc. The plan to be pursued is somewhat similar to that put into effect by the Motor Truck Club of New Jersey which has listed the trucks, their capacities, types of bodies, etc., as outlined in the June issue of the COMMERCIAL CAR JOURNAL.

Possibilities of Future

Among those present at the meeting was George H. Pride, of the Highways Transport Committee, of Washington, who said in part:

"For a long time past the work of the Highways Transport Committee has been looked at with interest by certain sections of the country and by a lack of interest, even, in some cases, an antagonistic view by other sections of the country. This work is not propaganda for any class. It vitally affects everybody and they will not realize it until they find themselves up against it. In England this thing was not done properly at the start. Now, there is not a horse, driver or motor truck that is not actually operated under government supervision. I mean direct control.

"In England it has gotten to a point where the government can take over for

Executive Section

Return-Loads Bureau, Mr. Stratton.
Rural Motor Express, Prof. Burritt.
Statistics Mapping, Snow Removal, Mr. Duffey.
Store-Door Delivery, Railroad Congestion, Mr. Fletcher.
Inland Waterways, Gen. Wotherspoon.
Publicity and Educational, Mr. Foster.

Field Section

No. 1	Mr. Fenner,	9 County Committees
No. 2	Mr. Odell,	8 County Committees
No. 3	Mr. Barcus,	16 County Committees
No. 4	Mr. Mathews,	15 County Committees
No. 5	Mr. Diehl,	14 County Committees

immediate use any vehicle on the streets. The only thing that is not covered, and by that I mean is not immediately controlled, is the horse for farm operations. All this may seem to you far removed from our present situation, but what I want to enforce on you is the idea that there is nothing that is impossible in the next six months in the form of control, if the situation comes to a point of force.

Greater Congestion Anticipated

"In spite of the fact that the railroad administrator has been making every effort to care for the movement of freight, the volume of freight that we have got to move this coming winter will be greater than last winter. Any increase in efficiency will be more than replaced by the excessive increase in freight. I have gone thus into detail because I want to emphasize the very serious situation that our transportation facilities are in at the present time. We have a situation that must be met and the first thing to do is to meet it. The Food Administrator is deeply interested, also the Department of Labor. There is no question that the Rural Express must be developed and as a matter of fact we understand that the railroad construction in general will be very much curtailed, if any of it is done whatsoever. So the increase will have to be handled by the highway.

"It has also come to the point where the manufacturer will have to utilize the Return Loads Bureau.

"One of the strongest reasons for this committee organizing is co-operation in this work. If the railroad lines fall down or if the coal limits the amount of transportation, we must furnish means for meeting a very serious condition. We have a problem ahead of us which must be handled in a workman-like manner."

To Enlist Farm Bureaus

In the discussion following it was decided that each chairman of the field section give consideration to the County Home Defense Committee in each county, Chamber of Commerce, Farm Bureaus, automobile and business interests in the selection of the county committees because of their knowledge of local conditions, particularly with reference to Rural Express, etc.

Mr. Pride advocated the co-operation of the Chambers of Commerce and County Committees as well as the services of a supervisory inspector to push the work of the State Highways Transport Committee. He took occasion to criticize the methods of some committees when he said:

"There has been too much starting things and letting them drop again. Two things are essential; one thing is to get organized and the other is to keep organized. We must not expect chambers of commerce to do our work for us. There is no efficient business organization without adequate supervision. County committees, if properly constituted, will be actually performing the

part of organization, and in the case of a large county with a number of return loads bureaus, certain members will have certain bureaus under their jurisdiction."

The organization plan as outlined by Mr. Pride was unanimously adopted. Professor M. C. Burritt assured the support of the farmers with the establish-

ment of the rural express routes and agreed to arrange for assistance from County Farm Bureaus when copies of the organization plans are ready for circulation among them. The New York State Highways Transport Committee is to hold semi-monthly meetings until the details of the organization are perfected. Next meeting will be held at Rochester.

Highways Transport Committee Development

Organization and Scope of the Work of This Committee of the Council of National Defense

THE work of the Highways Transport Committee, Council of National Defense, this committee having been appointed to make the most effective use possible of the highways as one of the means of strengthening the nation's transportation resources, is now being developed in such a way as to take in every state in the union. Further, through the medium of State Highways Transport bodies, functioning with the national body, this organization is being developed in some states, not only down to the districts, but to the counties and even communities.

The State Highways Transport bodies are a part of the State Council of Defense. They consist of the following:

The chairman of the State Highways Transport Committee, five members of the Highways Transport body, and a secretary.

The five members in question are named to represent areas of varying sizes and populations, each of the five members being chosen from one of such five different areas, and in turn serving as chairman of his district committee. The district boundaries are laid out in harmony with existing conditions, the aim being that the most effective results possible may be brought about. For instance, in one locality, large population centers may be found to be best as the heart of one or more districts. Again, in other sections, where cities of large population are not found, the district boundaries may be made to embrace agriculture, lumber, oil, or other areas.

Such highways transport committees have been organized in practically all of the states of the union, and are now functioning not only as a part of the State Council of Defense, but with the national body at Washington. While in some states the work in detail has gone forward to a most gratifying extent, thus pointing the way to those in which the state highways transport body has been more recently organized, without exception, efforts looking to the desired end in all states are being made.

The main activities of the national, and its allied, highways transport bodies are for the present being devoted directly to

return loads bureaus, rural express, co-operation with Federal Railroad Administration and transport operating efficiency.

These activities may be briefly interpreted as follows:

Return Loads Bureaus—Elimination of empty running of trucks by the bringing together of shipper and truck owner in a systematic way, so as to provide a full load wherever possible.

Rural Motor Express—Rapid development of the use of the motor truck in regular daily service over a fixed route with a definite schedule of stops and charges; gathering farm produce, milk, live stock, eggs, etc., and on the return trip, carrying merchandise, machinery, supplies, etc., for farmers and others along the route.

Co-operation with Federal Railroad Administration—Taking of congestion from crowded rails on to the open highways and also freeing terminals from railroad and express congestion.

Transport Operating Efficiency—The making of transportation more efficient, which end will be sought through encouragement of such use of highways transport as will operate to avoid the making of trips with only part loads; also, briefly, the elimination of waste efforts, man power, and time in loading and unloading.

Typical of the work being done by some of the State Highways Transport bodies, that already inaugurated in such representative states as Connecticut, New York, Pennsylvania, Michigan, Illinois and Colorado, may be suggested. For instance, resolutions recently adopted at a meeting of the Michigan Highways Transport Committee point the way to the manner in which that enterprising state is aiding in this vital phase of the war work.

Resolutions, in part, recommend that inter-city and rural motor express and return loads bureaus be established where practicable in every part of the state; that steps be taken to have the

(Continued on page 26)

How Rhode Island Put the Return-Loads Bureau Across

Hired an Expert Transportation Manager Who Thoroughly Understood the Shippers' Problem. Rate of One Dollar Per Mile for Five-Ton Trucks Agreed Upon. Rebate to Original Shipper When Return Load is Obtained

By C. P. SHATTUCK

THE Commercial Economy Board of the Rhode Island Council of Defense, which is operating the Return Loads Bureaus of that State, has solved the greatest of all Return Loads Bureau problems, viz., getting the shippers to use it as they should. In other words, the manufacturers of little Rhody have been sold the idea of utilizing motor trucks for obtaining their raw material and shipping the finished product. The Return Loads Bureaus, particularly the master bureau at Providence, are moving tons of freight, and this has been made possible by selling the shipper.

Educating the Shipper

The average Return Loads Bureau follows the conventional routine, that of circularizing, writing or telephoning the shipper. Yet, despite the publicity campaigns and follow-up letters, the results are frequently discouraging. That the shipper does not become easily and quickly converted to the use of the motor truck is not due to the organization of the Return Loads Bureau. Practically every bureau is well organized, but in a number of instances the person in charge, the manager or other official, is not a transportation expert; that is, he is not familiar with the methods, tariffs, etc., of the common carriers, and when he tries to sell the shipper his selling talk lacks the convincing punch.

Educational Bulletins

The bureau is sending educational bulletins to the shippers, and the following deals with shipping expense, of vital importance to all manufacturers.

"Sixty to 100 per cent increase in freight rates is what the shippers of New England are paying today. First-class freight rates from Providence to Worcester have recently been raised from 20½ cents to 37½; from Providence, R. I., to Fall River, Mass., 15 cents to 30; from Providence to New Haven, Conn., 34½ cents to 49, and other rates accordingly. These are concrete illustrations of the increase in expense that the shippers of New England, particularly Rhode Island, have had to pay, which shippers of other parts of the country have not been called upon to bear anything like the extent. Another bulletin calls attention to embargoes.

How Rhode Island Shippers Were Sold

The use of motor trucks instead of the old-time freight is an innovation to most of the shippers; consequently, printed matter, no matter how well

worded, fails to put the plan over, and as a result the average manager of the bureaus will say, "Well, we are organized. We have sent out barrels of letters, questionnaires and have broken all records for telephone calls. The shippers won't take hold, and that's all there is to it."

When Rhode Island organized its Return Loads Bureau the committee headed by Frederick W. Aldred wisely decided that to put the plan over required the services of a man who "knew every angle of transportation," both by the common carriers and by motor trucks and horse-drawn equipment. So the committee went on a still hunt for such a man and found him in George E. Leadbetter, of Boston, Mass., who was for 14 years soliciting freight agent for a well-known railroad and who not only knows transportation by motor truck, but every shipper of note in New England.

Solving the Problems

Mr. Leadbetter, in speaking of his early experiences, said: "The first few weeks were discouraging, but investigation convinced me that the shippers would not 'buy' truck transport by mail or phone, and even the publicity campaigns in the newspapers failed to obtain the desired results. So I took my automobile and visited the manufacturers and shippers and sold them the Return Loads Bureau."

He traveled hundreds of miles, although the state is not very large, and the result was gratifying. Having routes,

distances, tariffs, etc., at his command, he was able to answer all questions asked by the shipper, and convince the shipper of the practicability and economy of the plan. A follow-up campaign by car is being put into operation.

Truck Dealers Canvas Shippers

The personal solicitation campaign also included some very excellent work upon the part of the motor truck dealers in the state. These men have given much of their time in personally calling upon shippers and others to whom they had sold trucks. Each dealer was supplied with a form card, which, when filled out, afforded the Return Loads Bureau all essential data. One of the features of the cards are the suggestions made by the shipper, these relating to rates, distances, insurance, etc., and many suggestions were very practical and adopted by the Commercial Economy Board. The result of these campaigns was a list of about 1400 shippers.

Solving the Rate Problem

The shippers of Rhode Island are not unlike those of other states, in that they want to know what it is going to cost them to send their goods by truck. While the Return Loads Bureaus (there is a bureau at Woonsocket and Pawtucket) do not make rates, they handle this problem much in the same manner as does the Return Loads Bureau of Newark, N. J. Manager Leadbetter has a very comprehensive list of truckmen with their tariffs, and it has proven prac-

SHIPPERS' CARD

Name

Location

Whom to call regarding return loads

How many trucks?

Capacity?

Between what points do they travel?

To what points within a hundred miles are regular freight or express shipments made?

Suggestions:

(OVER)

Shippers' Card Used by Rhode Island's Return-Loads Bureau

The data was collected by the truck dealers who called personally on the shippers. The card differs from conventional forms in that suggestions were incorporated, many of which proved valuable

tical to bring the truckman and shipper together.

One of the greatest obstacles has been the tendency of some of the truckmen to obtain exorbitant prices, a condition due to a certain element in the Rhode Island Truck Owners' Association and the Furniture Movers' Association. At the meeting a certain element stood out for \$1.50 a mile for a 5-ton load. Manager Leadbetter pointed out that with a trip to Boston, 45 miles distant from Providence, it would cost a shipper \$67.50, and the round trip with a capacity load would net the truckman \$135. He also stated that first-class freight would cost the shipper but \$37.50 and that shippers would not consider paying practically double.

A committee of five appointed by the associations reported the following tariffs:

5-ton truck	\$1.00 the mile
3½-ton truck .....	.65 the mile
2-ton truck .....	.75 the mile
1-ton truck .....	.50 the mile

These rates apply as follows: First, only average conditions. An extra charge will be made where snow or other conditions cause unreasonable delay. Second, transit only, and do not include unreasonable time spent in loading, unloading, etc. Such delays will be charged for at \$4 per hour extra for a 5-ton unit. Third, only guaranteed weight capacity of trucks. These rates do not apply to furniture, bulk loads, or loads incurring excessive risk.

If a return load is obtained, both the outward charge and the return charge shall be the same, namely, 75 per cent of the charge above mentioned for a one-way load. If the original shipper wants the benefit of the return load rate, he must co-operate to obtain a return load. At a meeting held August 22 the above schedule was adopted.

Trucks Cheaper Than Freight

The fixing of the price of a 5-ton truck at \$1 the mile should give the truckman a good profit on a haul as from Providence to Boston, and it is pointed out by Mr. Leadbetter that it is cheaper than first-class freight when it is considered that the cartage haul is approximately \$1.50 the ton at each end of the haul. The truck also affords faster service and door to door delivery. These are the selling points of interest to the manufacturer or shipper.

The Return Loads Bureau of Rhode Island has also adopted a standard form of shipping receipt, the feature of which, aside from the conventional form, is the notation calling attention to the fact that the truckman is "Insured by and subject to Highways Transport Insurance Floaters Covering Consignment." Shippers will be educated to look for this notice on the blanks used by the truckmen. The reason is obvious.

Protecting the Shipper

The Commercial Economy Board does not believe its duties end with bringing the shipper and truckman together, but to endeavor to protect both from the

possibility of loss through fire, accident, collision, theft, etc. Through the efforts of the board a prominent insurance company of Providence took up the matter of a special policy with the home company, and a form was made out that covers practically everything except pilferage and at a rate of 1½ per cent.

As previously pointed out, the acquaintance of manager Leadbetter with shippers is proving extremely valuable, and as a result he has been able to arrange a large number of return loads for trucks leaving Providence and vicinity for points in Massachusetts, Connecticut, New York and Pennsylvania. An example of how efficiently the bureau is being operated is the arranging of three weekly trips of trucks taking finished goods from Pawtucket, R. I., to Waterbury and raw material from the latter place to Providence. Another case was a truck carrying a load to Philadelphia, where a load was arranged by the Providence bureau for New York, thence to Providence.

To Co-operate With Boston

The Rhode Island and Massachusetts bureaus are to co-operate by holding weekly meetings inasmuch as it is highly probable that the greater volume of business will be carried on in these adjoining states. At present there is a railroad embargo affecting cities and towns north of Boston, and these places either must haul over the road to Boston or use trucks, as goods not manu-

factured in Boston are not accepted at the railroad. This has stimulated the use of trucks and will, it is predicted, create a considerable volume of traffic by motor trucks between Massachusetts and Rhode Island.

Planning Snow Removal Campaign

Realizing that the highways must be kept clear of snow, the Commercial Economy Board is formulating its plans for obtaining the aid of the state. The main traveled highways are controlled by the state, and the coming session of legislature will be asked for an appropriation for snow removal. It would not be practical to rely upon the towns as none are equipped with proper apparatus, and it is doubtful if some of these towns could be aroused to the necessity of keeping the highways open in winter. It is very probable that snow fences will have to be utilized on some of the roads, particularly in the southern part of the state, where the snow drifts badly.

The Commercial Economy Board is confident that the money for snow removal will be forthcoming, and that its plans for arousing interest in the work in the various counties will meet with success. With New York launching a campaign for snow removal, and with Connecticut's plans and equipment ready, motor trucks should be assured open roads to the Massachusetts State line, and it is very probable that the Bay State will not be behind her neighbors in keeping the highways open.

Highway Transport Committee Development

(Continued from page 24)

state constitution amended and suitable legislation enacted, to aid in the granting of franchises, properly restricted, for organizing and equipping motor express lines.

Again, in Pennsylvania, an organization down to the county has been perfected, and noteworthy development has been brought in such counties as Allegheny, Butler, Clinton, Lawrence, Luzerne, McKean and Tioga. Pennsylvania co-operated most effectively during the heavy snows of the past winter to the end that routes selected for government motor truck trains on their way from points north to seaboard were cleared of snow and the overland trips, the first attempted by the Government, made possible. In this work Michigan also lent a hand most effectively.

In Illinois the transport division, Highways Transport Committee, has "gone to bat" in a manner which promises to set a pace for other states to follow, and entirely good-natured rivalry already is on to see which state will be able to produce the most effective results in the most approved manner in the shortest space of time. The Illinois committee has worked out a compact plan of organization, and drawn up a method of procedure.

It has established a return loads bureau in Chicago, located at the headquarters

of the State Council of Defense, and preliminary steps have been taken looking to the establishment of subsidiary bureaus in some of the larger towns between which and Chicago there is considerable movement of freight.

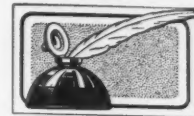
Connecticut was the first state to organize completely, with a return loads central bureau at Hartford. It has numerous flourishing bureaus outside of Hartford, equipped with telephone service, that delays in the transmission of orders may be eliminated. The Hartford bureau is constantly on the alert to the end that interested persons such as truck owners, merchants, farmers and manufacturers may know just when and where return loads service is available.

From Denver comes the information, through Tom Botterill, chairman of the state highways transport body, that a gratifying number of inter-city motor express routes are now in operation in Colorado, and that within a short time these will be organized as rural motor express routes in harmony with the plans of the national highways transport body.

The establishment of return loads bureaus throughout Colorado also is being given intensive study, and the state highways transport body is confident of being able shortly to have this vital war activity in operation.



EDITORIALS



Used-Truck Departments Are Beginning to Boom

QUITE a change has taken place in business organizations of the truck dealers within the past few weeks. Not long ago the majority and especially the big dealers frowned upon the used-truck department as a necessary evil. Many dealers absolutely refused to have anything to do with used trucks, while others would only take in machines of their own make, in many cases simply to hold the customer's business.

Since the Government has taken a hand in truck salvaging, this attitude on the part of the dealer has changed entirely. Many dealers are now beginning to advertise their used-truck department extensively in the automobile columns of the daily press.

Although the Government has classed the truck as a war essential, the fact must not be lost sight of that the conservation of steel must be continued, and to that end it is a patriotic duty as well as a step toward steel conservation to rebuild such machines that have still some life left in them. Selling and rebuilding used trucks should undoubtedly in these times become a profitable business, provided the machines to be rehabilitated are in fair shape and not too much time and too many replacements are needed to put the vehicles in good condition. And above all, the dealer who embarks in this business must be prepared to fully guarantee such a machine, as selling used trucks a la "gyp" methods will sooner or later lead to the detriment of his regular line and indirectly turn business away from his establishment on the sale of new trucks.

An Opportunity for the Body Builder

CONSERVATION of time and labor in unloading and loading commercial cars is of vital importance to the truck owner, especially in these days of labor shortage. The greatest number of hours that the truck can be kept on the road the greater will be the profits derived from motorized transportation. Time consumed in loading and unloading is simply time wasted; it would be far better to utilize that time in inspecting, oiling and greasing the machine.

Removable bodies which can be loaded in the interim that the truck is delivering another load, supplemented with a track or crane to quickly attach or detach the body from the chassis offer an ideal method for accomplishing this result. An example of the typical installation of this character is printed elsewhere in this issue.

Body builders could undoubtedly increase the scope of their business by building bodies along standardized lines, said bodies to be fitted with wheels to run on a standard gaged truck. These bodies could be used in practically any business or by any business house which has quantity deliveries among a number of retail stores belonging to the same concern. In the particular case referred to above, a grocery concern which conducts a chain of stores cut down the idle time of its trucks from hours to minutes. Installations of this type could be profitably employed in different classes of business and especially where it is a case of transporting goods among a chain of stores, factory buildings, etc.

Winter is Coming

THE wise truck dealer is planning how best to assist in the use of trucks during the coming cold period. Owing to the scarcity of men, better accommodations will have to be supplied to keep them in the open on the arduous duty of driving trucks through snowstorms, sleet and rain.

In many ways the driver can be made more comfortable during the winter time and these the dealer should study and, wherever possible, adapt them to the vehicle which he sells. Extra equipment to be applied to vehicles already in use can be displayed.

All kinds of devices for anti-skid purposes should be on exhibition and even winter clothing, gloves and the many little comforts which can be supplied the drivers should be handled.

A good display would consist of a truck equipped fully for winter with background and settings of a winter scene. Letters should also be sent to prospects calling their attention to this display and asking them to call. Letters might also be sent to past purchasers, giving them an idea of the latest, most up-to-date winter comforts, with an invitation to inspect same at the salesroom.

In this issue will be found described and illustrated many of the newest and latest devices along these lines.

It was not alone the motor trucks that saved Paris from the invasion of the Hun hordes, but also the good roads of France. We sincerely hope that the United States Highways Council will be generous in granting approvals for road construction, as all the trucks we can build will be of little avail unless our road system is perfected to the highest degree. Let us have the best roads in the world!

Who's Who in Washington War Work

Organization of Government Committees With Which the Automotive Industry is Concerned

Council of National Defense

Secretary of War, Chairman.
Secretary of Navy.
Secretary of Interior.
Secretary of Agriculture.
Secretary of Commerce.
Secretary of Labor.
Walter S. Gifford, Director.
Grosvenor B. Clarkson, Secretary.

Advisory Commission

Under the act creating it the commission acts as a body for research and investigation, and is charged with the co-ordination of industries and resources, for the national security and welfare, and with the creation of relations, which will render possible, in the time of need, the immediate concentration and utilization of the resources of the nation.

Daniel Willard, President, B. & O. R., Chairman.

Howard E. Coffin, vice president, Hudson Motor Car Co.

Julius Rosenwald, president, Sears, Roebuck Co.

B. M. Baruch, banker.

Dr. Hollis Godfrey, president, Drexel Institute.

Samuel Gompers, president, American Federation of Labor.

Dr. Franklin Martin, Secretary of Gen. American College of Surgery.

Walter S. Gifford, Director.

Grosvenor B. Clarkson, Secretary.

War Industries Board

This board is sort of a clearing house for the various committees which are in close touch themselves with the manufacturers of all kinds of war materials. It does not deal directly with the Automobile Industry, but acts through the National Automobile Chamber of Commerce.

B. M. Baruch, Chairman.

Rear Admiral Frank A. Fletcher, Navy.

Brig. Gen. Hugh S. Johnson, Army.

Hugh Frayne, labor.

Col. Palmer E. Pierce.

R. S. Brookings, Chairman Price Fixing Committee.

J. L. Replogle, steel.

C. C. Hanch, automotive products.

Judge E. B. Parker, Priorities Committee.

G. N. Peek, finished products.

L. L. Summers, technical advisor.

Alexander Legge, vice chairman.

H. P. Ingels, secretary.

Judge Albert C. Ritchie, Gen. Counsel.

Priorities Committee

Matters relating to priorities should be taken up by correspondence or interview with the secretary first, who will then refer you to the proper member of the committee.

Judge E. B. Parker, Priorities Commissioner.

C. K. Foster, vice chairman; public utilities, other than steam railroads, street and interurban railways, light and power plants, water works, highways, wharves and docks, electrical energy, turbines and large electrical equipment.

Maj. Gen. A. B. Aleshire, Army work other than ordnance.

George Armsby, Agricultural Implements; food products and containers, mining equipment, pig tin, tin plate.

H. H. Barbour, iron and steel products, sub committee on rating.

E. L. Crawford, co-ordination member, representing finished products division.

C. P. Howland, Emergency Fleet; controversies growing out issuance of priorities certificates.

F. G. Macpherson, all incomplete applications, and correspondence relating thereto, sub-committee on rating.

Rear Admiral N. E. Mason, Ordnance for U. S. Navy; co-ordinating member representing Navy, requirements of Allies.

Col. C. A. McKenny, Ordnance for U. S. Army; co-ordinating member representing Army General Staff.

Everett Morse, copper, wire rope, woolen and cotton goods, tubing, etc.

L. P. Ordway, oil-well and gas machinery, abrasives, lumber, etc.; sub-committee on rating.

T. C. Powell, railroad equipment and supplies, representative of Railroad Administration.

Rear Admiral A. V. Zane, Navy work other than ordnance.

Maurice Hirsch, secretary to the committee.

Price-Fixing Committee

Robert S. Brookings, Chairman.

B. M. Baruch, Chairman, War Industries Board.

Hugh Frayne, Labor Representative, W. I. B.

H. A. Garfield, Fuel Administrator.

Ex-Gov. H. C. Stuart, agriculture.

Lt. Col. R. H. Montgomery, Army Representative.

Commander J. M. Hancock, Navy Representative.

W. B. Colver, Chairman, Federal Trade Commission.

Dr. F. W. Taussig, Chairman, Tariff Commission.

W. W. Phelps, Secretary.

Requirements Division

Alexander Legge, Chairman.

B. M. Baruch, ex-officio.

Judge E. B. Parker, Priorities.

G. N. Peek, finished products.

J. L. Replogle, steel.

L. L. Summers, technical advisor.

C. H. McDowell, chemicals.

Pope Yeatman, non-ferrous metals.

Col. G. H. Estes, Army Representative.

Adm. C. J. Peoples, Navy Representative.

Capt. M. N. Taylor, Navy Representative.

Maj. Seth Williams, Marine Corps Representative.

G. M. Brill, Emergency Fleet Representative.

T. F. Whitmarsh, Food Administration Representative.

M. B. Poole, Red Cross Representative.

C. T. Powell, Railroad Administration Representative.

P. B. Noyes, Fuel Administration Representative.

J. A. Carr, Representing the Allies.

James Ingels, Executive Secretary.

Conservation Division

Its function is "the studious conservation of the resources and facilities, by means of scientific, commercial and industrial economies." Plans for eliminating the non-essential uses of labor, material, equipment and capital are being put into effect by this board in many industries. At the suggestion of the division, the War Service Committee of Automobile Dealers drew up a program for saving labor and materials in their business. The Committee decides on the details of the program, however, and is putting it into effect, without any action being taken by the Division. The Conservation Division is entirely in sympathy with the general purpose of the educational campaign being conducted by the W. S. C. of A. D. The Division in continuing its work with retail stores to secure economy in delivery services, and merchants in many parts of the country have put the Division's program into effect. With the co-operation of the War Service Committee of the Rubber Industry a program for the standardization of automobile tires has been worked out. This division assumed charge of the work of the Commercial Economy Board on May 8th, 1918.

A. W. Shaw, Chairman.

M. T. Copland, Secretary.

Automotive Products Section

C. C. Hanch, Chief.

This section has jurisdiction over the following line of automotive material, including combustion engines and their application, their accessories, parts, etc. With the exception of agricultural tractor, stationary and portable engines, for agricultural purposes; motorcycles, sidecars, motor cars, motor ambulances, motor trucks, motor truck bodies, motor truck tractors, motor truck trailers, armored cars, military tractors, military tanks, airplane engines, marine gas engines, stationary gas engines and automotive accessories and parts.

This section also passes upon the purchases of automotive materials for the Allied Governments, and their allocation to the different concerns.

Application for priorities certificates covering automotive materials are referred by the Priorities Committee to this section for advice and recommendation.

Aircraft Board

Fourth and Missouri Ave.

This committee should be communicated with in the first instance in regard to any matter pertaining to airplanes, etc. There are many departments dealing with materials, supplies, etc., located at the Signal Corps, Aviation Section office at 119 D St.

J. D. Ryan, Chairman.

R. F. Howe.

W. C. Potter.

Maj. Gen. W. M. Kenly.

E. A. Deeds.

Col. R. L. Montgomery.

Rear Adm. D. W. Taylor.

Capt. N. E. Erwin.

Lt. Com. A. C. Atkins.

Capt. H. M. Darling, Act. Secretary.

National Automobile Chamber of Commerce

Second National Bank Building,
509 Seventh St.

Hugh Chalmers, Vice-President of the N. A. C. C., is acting as Washington representative of the N. A. C. C. members. A staff consisting principally of engineers is assisting Mr. Chalmers in giving information to automobile manufacturers in connection with Government work. Alfred Reeves, Gen. Mgr. of the N. A. C. C., spends a large part of his time in Washington, in connection with the various interests of the automobile industry.

Highways Transport Committee

944 Munsey Bldg.

This committee was appointed by the Council of National Defense, to assist in making most efficient use of highways as one of the means of strengthening the Nation's transportation resources. The most important policies thus far adopted are: (1) To increase highways transport resources, and curtail waste by eliminating the running of vehicles empty. Return Load Bureaus have been established for this purpose. (2) To make more food available and save farm labor for work on farms. Rural Motor Truck Express routes for agricultural areas to consuming centers or important shipping points are advocated. (3) To make highway transportation more economical and effective by encouraging the use of power driven vehicles. Such vehicles conserve man power and increase transport capacity, and their general use is therefore endorsed. (4) To assist the Railroad Administration in the elimination of the terminal congestion. Development of the "Store-Door-Delivery" plan will provide terminals with this relief.

Roy D. Chapin, Chairman.

C. A. Musselman.

G. H. Pride.

H. G. Shirley.

R. C. Hargreaves, Secretary.

Motor Truck Committee of the N. A. C. C.

This Committee was organized for the purpose of co-operating with the Highways Transport Committee, in matters pertaining to motor truck haulage, and to give to builders of motor trucks of the United States such assistance as they may call for. It carries the authority of the N.A.C.C.

George M. Graham, Chairman.

W. T. White.

M. L. Pulcher.

David Ludlum.

D. C. Fenner.

S. A. Miles, in charge of rural motor delivery feature of the committee's activities.

United States Highway Council

All functions of Government agencies relating to streets and highways are co-ordinated in this body to eliminate delays and uncertainty incident to taking up each problem with a separate department of the Government.

L. W. Page, Department of Agriculture, Chairman.

Lt. Col. W. D. Uhler, War Department.

C. G. Sheffield, Fuel Administration.

R. L. Humphrey, W. I. B.

G. W. Kirtley, Railroad Administration.

J. E. Pennypacker, Secretary.

Division of Capital Expenditure.

United States Railroad Administration

Robert S. Lovett, Director.

Motor Transport Corps

Seventh and B Sts.

Brig. Gen. C. B. Drake, Director.

Col. J. F. Furlow, Asst. Director.

This Division has charge of procurement of all motor vehicles except tanks, caterpillars and other artillery tractors, for all divisions of the United States Army in this country, as well as overseas. Also supervises maintenance, operation and inspection of motor-driven vehicles, motor repair shops and garages.

United States Railroad Administration

W. G. McAdoo, Director General.

Regional Directors:

A. H. Smith, Eastern Territory, Grand Central Terminal, New York City.

N. D. Maher, Pocahontas Region, Roanoke, Va.

B. L. Winchell, Southern Division, Healey Bldg., Atlanta, Ga.

R. H. Aishton, Northwestern Territory, 226 W. Jackson Blvd., Chicago, Ill.

SERVICE BUREAU

OF THE

COMMITTEE ON PUBLIC INFORMATION

FIFTEENTH AND G STREETS
WASHINGTON, D. C.

Information available as to Officials, Functions, and Location of all Government Departments

United States Employment Service. Department of Labor

Main Office, 916 16th St., N. W.,
Washington, D. C.

John B. Dinsmore, General Director.

C. T. Clayton, Asst. Gen. Dir.

N. A. Smyth, Act. Asst. Dir. Gen., Sec. of Policies and Planning Board, Chief Common Labor Section.

T. B. Powderly, Chief, Division of Information, Administration and Clearance.

M. A. Coykendall, Chief, Division of Farm Service.

W. E. Hall, Chief and National Director of Public Service Reserve and Boys' Working Reserve.

R. W. Babson, Chief, Division Inquiry and Education.

I. W. Litchfield, Chief, Clearance Section (Skilled Labor).

S. W. Mason, Chief Clerk.

James L. Hughes, Asst. to Dir. Gen.

District Superintendents

District 1—H. A. Stevens, 53 Canal St., Boston, Mass.

District 2—J. R. O'Leary, 22 E. 22nd St., New York City.

District 3—J. C. Saylor, Old Federal Bldg., Wilmington, Del.

District 4—J. W. Reynolds, Cleveland, Ohio.

District 5—Ralph Izard, 810 E. Main St., Richmond, Va.

District 6—Cliff Williams, Meridan, Miss.

District 7—P. L. Prentis, 116 N. Dearborn St., Chicago, Ill.

District 8—C. C. Kavanaugh, Little Rock, Ark.

District 9—James O'Rilly, 406 Metropolitan Life Bldg., Minneapolis, Minn.

District 10—A. L. Barkman, Kansas City, Kans.

District 11—H. W. Lewis, Smithville, Texas.

District 12—W. T. Boyce, Claus Spreckles Bldg., San Francisco, Cal.

District 13—E. C. Snyder, First Ave. and Main St., Seattle, Wash.

Motor Mail Service in Virginia

The Postoffice Department has placed in service between Leesburg and Winchester, Virginia, a regulation motor mail car. The car leaves Leesburg in the morning and arrives at Winchester about 11.30 A. M. This car collects all kinds of mail matter from rural patrons along the route going and coming. It makes a connection at Berryville with a car bound for Charlestown, Frederick and Baltimore, Md., and also with a car for Washington. Before the establishment of this system of delivery most of the mail sent from Berryville to Winchester, a distance of only ten miles, was carried forty or fifty miles out of the way by trains, causing much delay. Under the present plan, a letter mailed at the Winchester postoffice before noon will be delivered in Berryville within an hour.

Buffalo Specialty Company Holds Convention

Salesmen of the Buffalo Specialty Co., Buffalo, N. Y., met at Buffalo July 22 to 27 for a convention, at which sales plans for the coming year were outlined. During the convention Oliver Cabana, Jr., president of the company, entertained the salesmen at his home. The Buffalo Specialty Co. manufactures Liquid Veneer and a radiator compound, Radiator Neverleak.

Bowling Green Die & Tool Co., Bowling Green, O., is a new \$25,000 organization, formed recently for the manufacture of tools and dies. Officers elected recently are: Clyde V. Urschel, president; W. M. Gray, vice-president; Philo S. Hankey, secretary and treasurer; R. L. Swartz, manager. These officers, with P. M. Davidson, form the directorate.

No Jobbers' Exhibit

After a conference with the Secretary of Commerce representatives of the National Association of Automobile Accessory Jobbers reported that they felt that there is no place for a show or exhibit at this time. Secretary Redfield reminded the jobbers that every activity of the Government at this time was primarily devoted to the one object of winning the war, and that patriotism demanded this sacrifice on the part of the jobbers. As early as August 15, the date of the meeting and allotment at the Hotel La Salle, it had been felt that plans for the show should be abandoned.

License Receipts Grow in North Carolina—Receipts from the sale of automobile license tags during the month of July, 1918, were greater than all collections during 1917. The sum total collected in July, 1918, was \$344,847.19, as compared with \$326,936.62 during the fiscal year of 1917.

Car and Model	Price	Specifi- cations	Car and Model	Price	Specifi- cations	Car and Model	Price	Specifi- cations	Car and Model	Price	Specifi- cations
Master			Rennoc			Tiffin			Winther		
M, 2-ton .....\$2390	Feb. -35		2½-ton .....\$2895	May -52		A, 1500 lb. ....\$1100	Jan. -31		48, 2-ton .....\$3000	Feb. -31	
O, 2-ton long			Reo			GW, 1½-ton ..2075	Jan. -35		68, 3-ton .....3800	Feb. -32	
w. b. ....2490	Feb. -35		F, 1500 lb. ....1275	Feb. -21		MW, 2½-ton ..2750	Jan. -41		88, 4-ton .....4200	Feb. -37	
W, 2-ton worm			Republic			PW, 3½-ton ..3600	Jan. -44		108, 5-ton .....5000	Feb. -37	
drive .....2590	Feb. -35		Dispatch, 1500			RW, 5-ton ....4650	Jan. -46		128, 6-ton .....5250	Feb. -38	
WL, 2-ton worm			lb. ....1095	Feb. -21		SW, 6-ton ....4850	Jan. -46		148, 7-ton .....5500	Apr. -51	
drive, long w.			Sp., 2000 lb.			Titan			Witt-Will		
b. ....2690	Feb. -35		Max. ....1295	Feb. -21		3½-ton .....4000			WD, 2-ton ....2850	Jan. -39	
3½-ton .....3890	Feb. -35		10, 1-ton .....1485	Feb. -24		5-6-ton .....5000	Feb. -37		Gasoline Electric Truck		
Maxwell			11, 1½-ton .....1775	Feb. -27		Trabold			Tractors		
1-ton .....1085	Feb. -23		12, 2-ton .....2150	Feb. -31		TJ, 1-ton ....1200	Jan. -33		Couple Gear		
Menominee			T, 3½-ton .....3450	Feb. -35		Traffic			5-7-ton .....6000-6100		
1-ton .....1775	Feb. -23		V, 5-ton .....4750	Feb. -37		4000 lb. ....1195	July -42		7-10 ton ..6400-6600		
H, 1½-ton .....2290	Feb. -27		Reya			Triangle			10-15 ton..7100-7200		
D, 2-ton .....2715	Feb. -29		A-18, 1500 lb... 995	Jan. -31		1½-ton .....2185	Apr. -50		Gasoline Truck Tractors		
G, 3½-ton .....3580	Feb. -35		Riker			Twin City Four Wheel			Acason		
J, 5-ton .....4540	Feb. -37		3-ton .....Jan. -41			B, 3½-ton ....4750	Drive		Light .....2950		
Moreland			4-ton .....Jan. -44			A, 5-ton .....5250			Heavy .....4300		
1-ton .....2175			Rowe			Trojan			Columbia		
1½-ton .....2930	Feb. -27		2-ton .....3000	Jan. -39		26, 1-ton .....1500	Jan. -33		6-ton .....1950	Feb. -38	
2½-ton .....3500	Feb. -31		2½-ton .....3250	Jan. -41		Union			Evans		
4-ton .....4500	Feb. -37		3½-ton .....3800	Jan. -43		B, 2½-ton ....2375	Feb. -31		L, 2½-ton ....2850	Jan. -47	
5-ton .....5000	Feb. -37		5-ton .....4900	Jan. -43		4-ton .....Jan. -31			Garford		
Muskegon			Rush			United			70B, 4½-ton..3400	Jan. -47	
20, 2-ton .....2325	Feb. -29		F, 1000 lb. 895	Jan. -29		1½-ton .....2600			77, 7-ton .....4400		
Nash			Sandow			2½-ton .....3300			68, 10-ton .....5100		
2018, 1-ton ....1595	Feb. -23		G, 1-ton .....2050	Feb. -24		3½-ton .....3900			Rennoc		
3018, 2-ton ....2075	Feb. -29		CG, 1¼-ton ...			5-ton .....4700			8-ton .....2895		
Quad, 2-ton ...3250	Feb. -29		H, 1½-ton .....2550	Feb. -27		U. S.			Electric Truck Tractors		
Nelson			J, 2-ton .....3250	Feb. -31		E, 2½-ton ....2800	Jan. -41		Couple Gear		
1-ton .....1700	Feb. -23		K, 3½-ton .....4250	Feb. -35		H, 2½-ton ....3250	Jan. -41		5-7 ton ....4500-4600		
2-ton .....2250	Feb. -29		Sanford			D, 3½-ton ....3500			7-10 ton ..5100-5200		
3-ton .....2950	Feb. -32		W25, 2½-ton ..3000			J, 3½-ton ....3950	Jan. -44		10-15 ton..5700-5800		
5-ton .....3750	Feb. -32		W35, 3½-ton ..3975	Jan. -43		K, 5-ton .....4850	Jan. -46		Electric Commercial		
Netco			W50, 5-ton ....4750			Universal			Atlantic		
2-ton .....2800	Jan. -39		Schacht			1½-ton .....2000	Feb. -24		1-ton .....Jan. -49		
New York			2-ton .....3150	Jan. -39		3-ton .....3400	Feb. -31		2-ton .....Jan. -49		
M, 1½-ton ....2600			2½-ton .....3500	Jan. -41		3½-ton .....3700	Feb. -35		3-ton .....Jan. -50		
N, 2-ton .....2800			3½-ton .....3950	Jan. -43		Velle			5-ton .....Jan. -50		
Noble			5-ton .....4950	Jan. -46		25B, 2-ton ....2950	Feb. -27		6-ton .....Jan. -50		
NW, 2-ton ....2675	Feb. -29		Selden			26B, 3½-ton ..3900	Feb. -33		6½-ton .....Jan. -50		
Northwestern			TXL, 1-ton ...1900	Jan. -33		Viall			C. T.		
1½-ton .....2600	Feb. -27		TWL, 1-ton ...2100			2-ton .....2200			1000 lb. ....1750	Jan. -49	
Old Hickory			JCB, 2-ton ...2750	Jan. -39		Vim			1-ton .....2100	Jan. -49	
1500 lb. 995	Jan. -31		JWB, 2-ton ...2950			1000 lb. 845	Jan. -29		2-ton .....2500	Jan. -49	
Oneida			NL, 3½-ton ...3850	Jan. -43		22, 1½-ton ....3150	Jan. -35		3½-ton .....3650	Jan. -50	
A, 1-ton .....2290	Feb. -23		DL, 5-ton ....4950	Jan. -46		23, 2½-ton ....3950	Jan. -41		5-ton .....4150	Jan. -50	
B, 1½-ton .....2650	Feb. -27		Service			Walter			Couple Gear		
C, 2-ton .....3000	Feb. -31		220, 1-ton ....1900	Feb. -24		5-ton four			3½-ton .....4500	June -18	
D, 3½-ton .....3700	Feb. -35		240, 2-ton ....2750	Feb. -31		wheel drive..5500			5-ton .....5000	June -18	
E, 5-ton .....4750			270, 3½-ton ....3600	Feb. -35		Western			7-ton .....5600	June -18	
Overland			275, 3½-ton ....3900	Feb. -35		7-ton .....5700	Feb. -38		General Vehicle		
800 lb. 865	Jan. -28		300, 5-ton ....4600	Feb. -37		White			1000 lb. ....Jan. -49		
1200 lb. 975	Jan. -30		Signal			1500 lb. ....2300	Jan. -31		1-ton .....Jan. -49		
Packard			F, 1½-ton ....2000	Feb. -25		1½-ton .....3300	Jan. -36		2-ton .....Jan. -49		
1E, 1-ton .....2650	Feb. -27		H, 1½-ton ....2500	Feb. -27		3-ton .....4100	Jan. -41		3½-ton .....Jan. -50		
1½E, 2-ton ...3000	Feb. -31		J, 2½-ton ...2925	Feb. -31		5-ton .....5000	Jan. -46		5-ton .....Jan. -50		
2E, 2½-ton ...3400	Feb. -31		M, 4-ton .....3950	Feb. -37		White Hickory			Lansden M.		
3E, 4-ton .....4100	Feb. -37		R, 5-ton .....4750	Feb. -37		F, 1-ton .....2000			1000 lb. ....2350	Jan. -49	
4E .....4450			Standard			H, 1½-ton ....2400	Jan. -35		Master		
5E, 6-ton .....5150	Feb. -38		70, 2-ton .....2800	Feb. -31		Wichita			6-ton .....2650		
6E .....5400			65, 3½-ton ....3675	Feb. -35		A, 1-ton .....1800	Feb. -24		Walker		
Palmer			85, 5-ton .....4650	Feb. -37		K, 1-ton .....1800			M, 1000 lb. ....Feb. -39		
1-ton .....1685	Feb. -24		Stegeman			L, 1½-ton ....2100	Feb. -27		K, 1-ton .....Feb. -39		
2-ton .....2495	Feb. -31		2-ton .....2800	May -54		M, 2-ton .....2500			L, 2-ton .....Feb. -39		
Panhard			3-ton .....3350	May -54		B, 2-ton .....2500	Feb. -31		P, 3½-ton ....Feb. -39		
1-ton .....1095	Feb. -24		4-ton .....4000	May -54		R, 2½-ton ....2700	Feb. -31		N, 5-ton .....Feb. -39		
1½-ton .....1295	Feb. -27		5-ton .....4750	May -54		O, 3½-ton ....3600	Feb. -35		5, 10-ton tractor	Feb. -39	
Peerless			Stewart			Q, 5-ton .....4300	Feb. -37		3, 15-ton tractor	Feb. -39	
3-ton .....4000	Jan. -44		6, 1500 lb. 950	Jan. -31		S, 6-ton .....5400			Ward		
4-ton .....4150	Jan. -45		8, 1-ton .....1575	Jan. -33		Wilcox			WS, 750 lb. ....1100	Jan. -49	
5-ton .....4700	Jan. -46		9, 1½-ton ....1975	Jan. -35		X, 1½-ton ....2775	Feb. -27		WA, 1000 lb. ....1600	Jan. -49	
6-ton .....5200	Jan. -46		7, 2-ton .....2575	Jan. -39		P, 2-ton .....3250	Feb. -31		WB, 1-ton ....2100	Jan. -49	
Pierce-Arrow			Studebaker			F, 3½-ton ....3950	Feb. -35		WD, 2-ton ....2600	Jan. -49	
2-ton .....3750	Jan. -39		SF, 1000 lb. ...1045	Feb. -20		W, 5-ton .....4850	Feb. -37		WF, 3½-ton ...3200	Jan. -50	
5-ton .....5500	Jan. -45		1-ton .....1400	Feb. -24		Wilson			WH, 5-ton ....4000	Jan. -50	
Rainier			Sullivan			1-ton .....1650			Gasoline Electric		
R-1, 1000 lb. ...1150	Jan. -29		F, 1½-ton ....2350	Jan. -35		2-ton .....2550	Feb. -31		Couple Gear		
R2, 1500 lb. ...1250			E, 2-ton .....2850	Jan. -39		3½-ton .....3800	Feb. -35		3½-ton .....6000		
R4, 1-ton .....1475	Jan. -33		Superior			5-ton .....4600	Feb. -37		5-ton .....6600		
R6, 3000 lb. ...1790			A, 1-ton .....1600	Jan. -33					7-ton .....7200		
			C, 2-ton .....2200	Jan. -39							

Illinois Defense Council Economizes by Use of Motor Trucks

The problem confronting the highways transport committee of the State Council of Defense of Illinois includes the doubling of freight movement by motor truck in and around Chicago, the elimination of freight movement by rail in less than carload lots in and around the city, and the release of 250 to 300 cars a day for general freight service. The release of these freight cars, 90,000 a year, at 60,000 lb. to the car, would mean the release of an annual carrying capacity of

2,700,000 tons. The council of defense proposes to accomplish this by the establishment of return loads bureaus in Chicago and the surrounding territory, from Waukegan on the north to Gary, Ind., on the east, and the enlistment of the co-operation of shippers, receivers and commercial associations to make the return loads bureaus effective. With these bureaus it may be necessary to establish pick-up service in outlying towns to assemble the return loads. One motor express line already does this, assembling loads at a central point in Aurora,

using light trucks for distribution delivery in Chicago and moving the freight between terminals in 5-ton units.

Good Roads for Milwaukee. At a recent meeting of the Wisconsin Good Roads Association it was announced that the concrete work being done on the Sheridan road between Milwaukee and the Illinois line would be completed in October. This news will be hailed with delight by motorists, as this section of the famous highway was one of the worst roads in the middle west.



Simplicity and Economy Features of Model 10 Conestoga Truck

SIMPLICITY of design and economy of operation and upkeep are features of the model 10 chassis Conestoga truck, manufactured by the Conestoga Motor Truck Co., Lancaster, Pa., and distributed solely by the First National Sales Corp., also of Lancaster, Pa. This truck is designed to carry 1800 lb. load, but has withstood the burden of heavier loads, due to the fact that the maker's rule has been to build to over-dimension at points of wear and burden. There has been embodied in this chassis scientific disposition of the relation of traction and weight; a short wheelbase; greatly reduced friction points; the economy and power of the engine; all of these contributing to the economy of operation, and low cost of upkeep. This chassis is sold with steel panel bodies for light hauling and general express work, and express bodies of convenience and strength, with enclosed cabs complete the standard line. Bodies will be made up special, if desired.

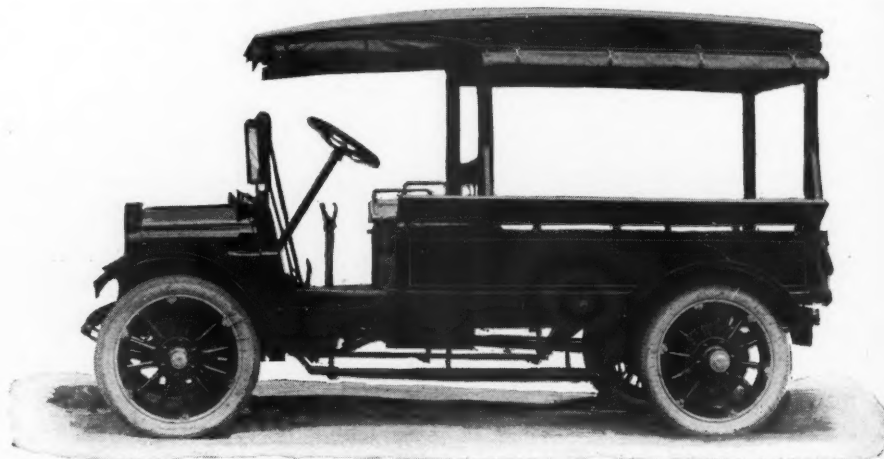
The Power Plant

The engine of the power plant is built to trucking requirements, it being the Light model H 4-cylinder engine for commercial cars. It has a bore $3\frac{3}{4}$ in. and a stroke of $4\frac{1}{2}$ in. and is geared 6:1 to the rear axle. The maker states, this engine with this gear reduction provides

sufficient pulling power for all road conditions, and that it will carry an 1800 lb. load with ease over poor roads. A feature of this Light engine is the use of the exhaust of the engine to heat the intake manifold, thus reducing fuel consumption and increasing the power. A Dyneto starter is used, the generator being separate. Ignition is by the Connecticut distributor mounted on the generator. The radiator is a cellular honeycomb and tube, with a hammered shell,

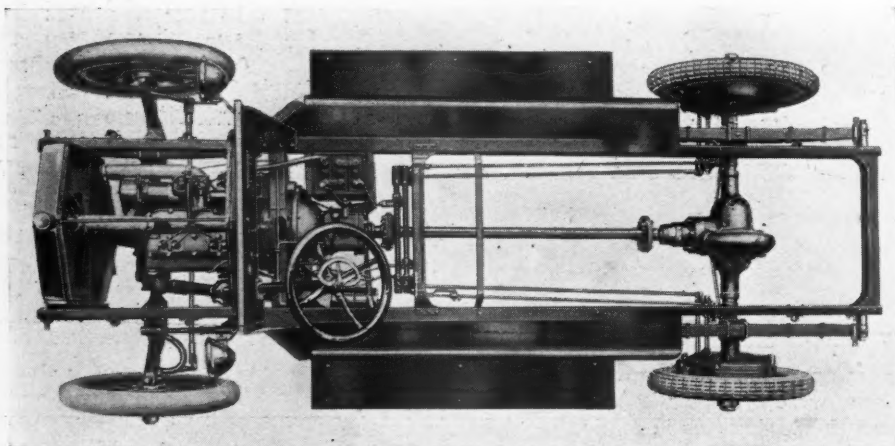
and is oversize. The carburetor is a Zenith, designed especially for commercial car use. The transmission is a Grant-Lees selective type, sliding gear, and is mounted in unit with the engine and clutch. It provides 3 speeds forward and 1 reverse.

The driveshaft is a Norwalk tubular, with Thermoid flexible fabric disks in each joint. The front axle is a drop forging "I"-beam section, and has oversized spindles. It is Salisbury make. The rear



The Conestoga Open Express Body, Style C

This is a four-post top delivery, for almost every kind of service or any kind of business. The inside dimensions are 72 inches, side panels 14 inches inside, and the height 62 inches. The flareboards are 6 inches.



Plan View of the Conestoga Chassis, Model 10

The capacity of this chassis is eighteen hundred pounds. It has a Light engine, Model H; a complete lighting and starting outfit, and the drive shaft is equipped with Thermoid flexible fabric disks, in place of the usual universal joints.

axle is a $\frac{3}{4}$ -floating and has Brown-Lipe internal-bevel gears in the differential. The steering gear is a Ditwiler, worm and wheel type.

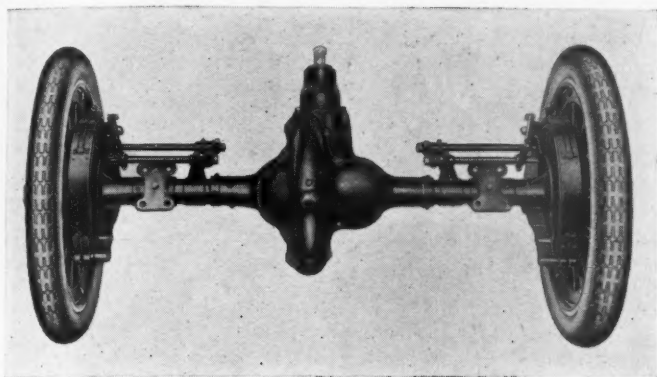
The foot service brake is external contracting and the emergency internal expanding, both acting on rear wheel brake drums. The wheels are Salisbury, the front and rear each having 12 spokes. Demountable rims are supplied on these wheels.

General Details

The control is from the left side. The steering wheel is 17 in. and the spark and throttle levers are mounted on top, with foot connection to the throttle. The gear-shift lever is mounted on the transmission in the center of the chassis. The gasoline tank is galvanized iron, 24 gage and has a capacity of 10 gal. The frame is a Parrish & Bingham, 4 in. channel,

150 in. long. It is made of 3-16 in. material.

The springs are Superior make, the front 36 x 1 3/4 in. with 8 leaves, and the rear 44 x 2 in., with 9 leaves. They are semi-elliptic and drive is Hotchkiss type. The tires are 31 x 4 in. pneumatic, front and rear, anti-skids on the rear. The equipment includes the horn, windshield, electric side lamps, electric tail lamp, jack tool kit, tire holder, etc.



The Conestoga Rear Axle

This axle is of the internal bevel-gear type. It is three-quarter floating and has Brown-Lipe gears.

On the instrument board, directly in front of the driver, are located controls for the self-starter, electric lights and ignition. The generator and self-starter are so situated that they can be taken off in a few minutes, and the ignition is so simple and easily reached that anyone can repair or adjust it. The storage bat-

tery, an Exide, can be removed without lifting the body, by raising one of the floor boards. It is located at the right of the transmission when facing forward. Access to the gears and the differential can be had by removing the differential cap. All gears are in sight and any needed adjustment can be conveniently made. The rear axle is strongly built, permitting a 50 per cent over-rated load. All the brake expansion rods are directly

under the removable floor board so they can be adjusted without removing the body or any part of the truck. The windshield, mounted on the dash, is the clear-vision type and the dash is ventilating type. Crown fenders are provided front and rear. The running boards are covered and bound.

The steel panel body, style B, is handsome and has graceful lines. It is built unusually strong, waterproof, dust-tight and well finished. The inside dimensions are 72 in. long, 44 in. wide, and 56 in. high. The seat back is upholstered and the seat has a spring cushion. Double doors in the rear, with oval glass, provide access. Curtains are supplied for enclosing the driver. The Conestoga convertible farm body style A has 2 removable seats. It is a passenger and freight body combined, a handy vehicle for the farm. It is well finished and stylishly designed, and commodious as well. It has the same dimensions as the panel body described previously.

The open express body style C is a popular 4-post body for all kinds of service. The frame is of ash with wood panels, and the floor boards are heavily ironed and substantially reinforced. The roof is of narrow pine, and is covered with Fabrikoid. Storm curtains are supplied, and a seat for the driver, with an upholstered lazy back. A chain tail gate is included with this model.

The Conestoga cabin-top body has a top over the seat only. It has glass sides, storm curtains and roll curtain rear, all curtains being black oil duck. Imitation leather trimming is provided and a drop tail gate with chains. The inside dimensions are 72 in. long, 44 in. wide, the side panels being 12 in. high with a 6-in. flare-board.

The All-American "Super-Trucks"

A RECENT announcement to the industry discloses the All-American "Super-Truck" Model A, manufactured by the All-American Truck Co., Sacramento Blvd., Chicago and Grant Aves., Chicago, Ill. This All-American truck is made up mainly of standardized units, the engine being a Herschell Spillman, the transmission a Grant-Lees, the clutch, a Borg & Beck, etc. The president of the All-American Truck Company is H. Spear, organizer of the Scripps-Booth Co. Robert J. Sutton, formerly of the Four Wheel Drive Co., and Glenn W. Barden from the Kelly-Springfield Motor

Co., are others well-known to the industry connected with this concern. This concern plans to devote its entire energies to the one size truck, Model A, the 1-ton, and offers it as a gasoline and kerosene burning truck. The wheelbase of this truck is 130 in.

General Details

The weight of this Model A 1-ton truck is 2800 lb. It has a capacity of 1 ton, and the price of the chassis is \$1295. The engine is a Herschell Spillman 3 1/4

x 5 in., with a rating of 16.9 hp., the actual brake horsepower being 43. Features of this engine are: cylinders cast in block, 3-point suspension, force feed lubrication and splash. The cylinders are L-head and the crankshaft is extra heavy and operates on two bearings. Cooling



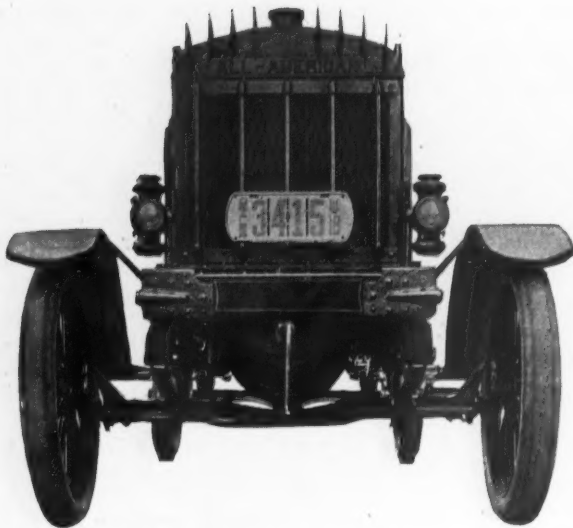
Right Side of the Chassis of the All-American "Super-Truck"



Left Side of the Model A, All-American "Super-Truck," Equipped With Driver's Seat

is by the thermo syphon system. The speed of the truck at 1800 r.p.m. of the engine is 26 m.p.h. No governor is fitted. The radiator is a cellular core with cast tank and case. The carburetor is a Zenith gravity feed. Ignition is by a Dixie high tension magneto with a fixed spark.

The clutch is a Borg & Beck, 10-in. dry plate clutch and the transmission, a Grant-Lees of the selective sliding gear



type with 3 speeds forward and 1 reverse, controlled from the center of the chassis. A Ross steering gear is mounted on the left side.

From the gearset power is transmitted through a 2 joint propeller shaft assembly, the Universals being at either end. This assembly is made by the Detroit Universals Products Co. The rear axle is a Torbensen internal gear drive, having a gear ratio of 6.5:1. The wheels are artillery type, front and rear, and the tires front are 33 x 4 in. pneumatic, Republic make, the rear 32 x 4 in solid, Goodyear make. All springs are of the semi-elliptic type, the front 38 x 2 in., the rear 54 x 3½ in., the main plate being of silico manganese and the balance of the leaves of carbon steel.

The Hotchkiss type of drive is employed. The front axle is an Elliott of commercial car design, a drop forging of I-beam section. The frame is manufactured by the Detroit Pressed Steel Co. It is a 5-in. pressed steel section, with 2-in. flanges and manufactured of 5-32-in. stock. The foot service brake is external contracting on the rear wheel drums and the emergency internal expanding on the wheel drums. The control lever is in the center of the chassis, beside the gear shift lever.

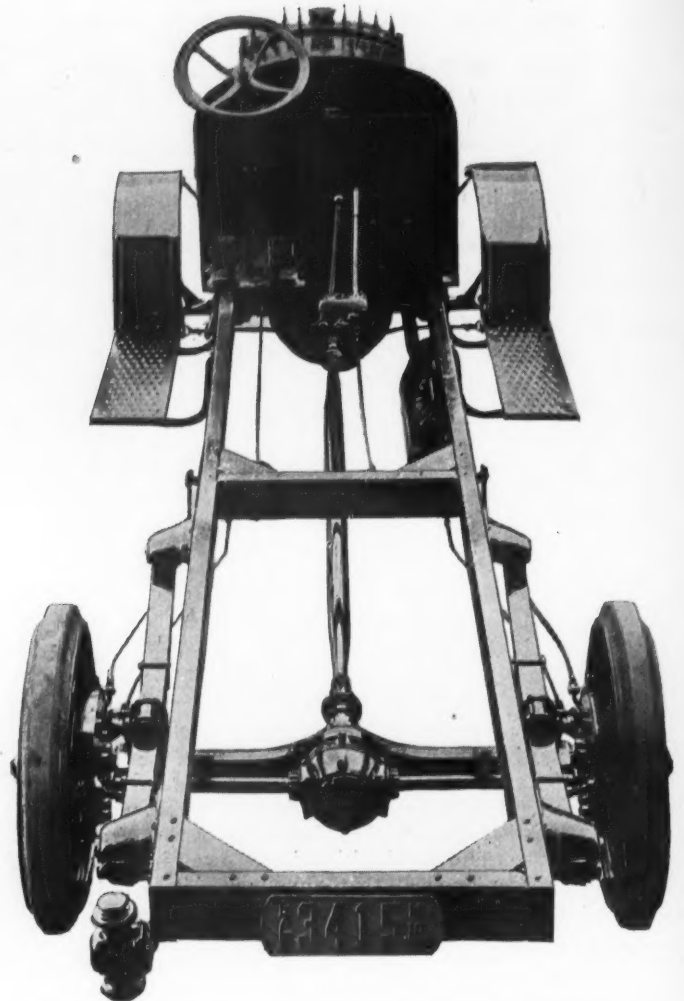
Provision is made for installing any standard S. A. E. starting and lighting outfit, which will be furnished at additional cost, if desired.

The tread of this truck is standard, 56 in. The color is All-American yellow. Equipment includes front fenders and running boards, headlight, tail light, horn, jack, tools, etc. Production of this truck is expected to reach 1500 chassis during the next 12 months. It is the plan of this concern to build the one model and produce them in considerable volume. The chassis has been designed so that there is hardly a right and left hand part on the entire chassis. In other words, the spring brackets, engine supports and various other supports, serving similar purposes are interchangeable. This minimizes the investment and the expense necessary by the company and increases the production.

Front View of the All-American Truck

Bird's-Eye View of the All-American "Super-Truck"

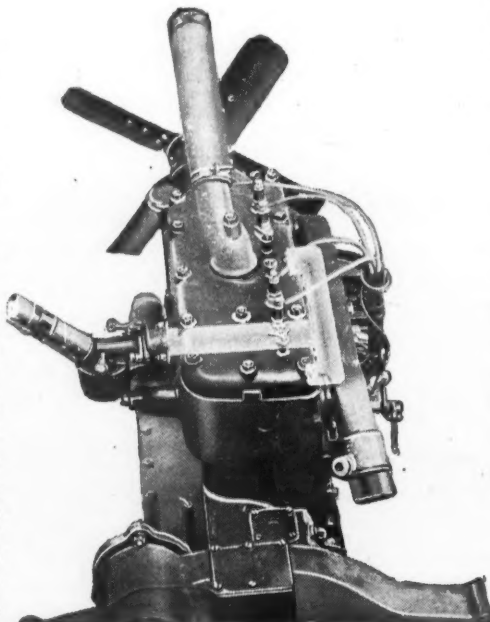
Notice the simplicity of the chassis, and the absence of unnecessary parts.



Triple Heating of Mixture in Fulton Truck

The latest feature of the engine of the Fulton Motor Truck, made by the Fulton Motor Truck Co., of Farmingdale, L. I., is the triple heating of the mixture be-

fore it enters the cylinders. First, pre-heated air is supplied to the carburetor, it being drawn through a stove attached to the exhaust pipe, this heated air serving to vaporize the globules of gasoline which have been broken up at the spray nozzle of the carburetor. This gas mixture from the carburetor is then conducted through a channel between the cylinders to the opposite side of the engine. The third heating of the air and mixture takes place when the gases pass the hot spot of the exhaust contact manifold. The Fulton company states that the result of these three heatings of the air and mixture produces a thoroughly combustible mixture, the result being greater power, more mileage from the fuel, and in general greater engine efficiency. There is less waste of gasoline and low grade fuels and carbon deposit is greatly reduced. The Fulton company also states that from 12 to 14 miles on a gallon of gasoline is often obtained.



Phantom View, Showing Passages Through Which Gases Pass

Shuler Axle Mfg. Co., Detroit has recently increased its capital stock from \$150,000 to \$200,000. The company's plant has recently been enlarged.

Remy Electric Co., Anderson, Ind., is erecting a new administration building. The general offices of the company are now in temporary quarters pending the completion of the building.

J. Pusher Sellem Sprinkles the Ginger

THE big fellow who sauntered into the show and salesroom of the ABC Truck Sales Co. looked as if he might be a prosperous business man interested in the purchase of a motor truck. In spite of this possibility, however, his entrance created no visible effect on the two young men in the rear of the room who seemed deeply interested in something one was telling the other. Nor did the older man, with the gray hair, seated at a desk within the railed-off office space over in one corner of the room, seem to be particularly interested in anything other than the newspaper he was reading.

The big fellow walked over to the first of the six big ABC trucks lined up against the wall on one side of the center aisle and to a casual observer he would have appeared considerably interested in the big gray motor truck that was known to every one in the trade as one of the best sellers put on the market by any truck company. He casually looked at his watch, then resumed his apparent interest in the truck.

Eventually the soft conversation between the two young men at the rear of the room came to an end, amid cackles of sly laughter. And one of them, with a parting chuckle, sauntered up toward the front of the salesroom and approached the big fellow with a none too interested air.

"Interested in motor trucks?" queried the young man.

"Why, slightly," returned the big fellow.

"Great institution," averred the young man.

"They seem to be," was his answer.

"This truck's got 'em all 'skun,'" went on the younger chap in a sort of sing-song way. "Valve-in-head engine, worm gear drive, selective transmission, locking differential, and gee, look at her, look at her, isn't she painted swell? I tell you, it's got 'em all 'skun,'" and the young man stopped with an air of finality, as if there were nothing more to say. He had enumerated all its fine points.

The older man showed a mild interest.

"Say," he queried, "you're not really trying to sell me this truck, are you?" And there was a bite to his words that somehow failed to warn the younger man.

"Why—er—yes, no, why, you see, I thought you might be interested," stammered the young man.

For the first time the big fellow showed unmistakable signs of interest.

"Thought I 'might' be interested, eh? Thought I 'might' be. Say, it's your busi-

ness to take it for granted that the minute I come in that door I *am* interested. If I'm not mistaken that's why you're given slab room in this motor truck morgue. You sure haven't shown any signs for bonfires and joy celebrations at having your name on the payroll since I came into this place, however."

The big fellow strode off toward the desk and the gray haired man, who had lowered his newspaper and was showing some interest in the last few words that came to him from across the room.



"Ought to! A cobbler ought to be able to cut out your appendix. But you wouldn't call on him to do the job, would you?"

The big fellow stopped at the desk, and laid a card on its edge.

The name that the gray haired man read on the card was "J. Pusher Sellem," and below it the legend, "Sales Manager, ABC Truck Company."

He bobbed up like a jumping jack and stuck out his hand effusively, and welcomed the big fellow with a show of enthusiasm which certainly was not begotten of the letters which had, of late, come with increasing regularity, asking bluntly if he was so happy in the company of his ABC trucks that he hated to part with them, and containing similar sarcastic thrusts.

And Then the Storm Broke

J. Pusher Sellem was noted for the directness with which he got down to the business at hand, and he ran true to form in this instance.

"Say," he exploded. "I've been wondering what in time was the matter with this town of yours, why the people didn't seem to care for ABC trucks. But I don't wonder any more, and I apologize, humbly and contritely, to this burg. I've been here four hours, I've seen every make of truck that was ever poured out of the mold dust-

ing up and down your streets, except the ABC. So I know the town's all right. And the ten minutes I've spent back of the shining plate glass that graces the front of this abode of Morpheus has shown me just about why I don't see any ABC trucks careening wildly about your busy little streets.

"When you used to handle the Speedalong passenger car you had a reputation for being a pretty live wire in the business, and you certainly did sell a bunch of those speed babies while they lasted. That's why we let you have the agency for the ABC

truck, thought you'd start them rolling the highways right off the jump. You've sold two, the two that our district sales manager helped you on. And that's all. Say, where'd you get those two little jokers that were cluttering up the back end of the room when I came in?"

"Why," stammered the gray haired man, "those two men were my best salesmen on the Speedalongs. They sold most of the passenger cars that went out of this agency."

"Maybe so, maybe so," mused Sellem. "But say," he continued, "do they know anything about the ABC truck, do they know anything about it? Huh? And do they know anything about selling trucks to business men, as compared with selling passen-

ger cars to the hundred and one different types of buyers of that type of machine? And have you tried to teach 'em anything about trucks and how to sell trucks?"

"Why, yes, I guess—of course they know something about ABC trucks. N—no, I haven't really taught them as much as I might, I suppose—sort of thought they might not like it if I tried to tell them how to sell trucks. Y' see, they're star salesmen on passenger cars. So of course they ought to be able to sell trucks just as well."

J. Pusher looked as if he might explode. He seemed actually to swell with wrath.

Why the Shoemaker Should Stick to His Last

"Ought to be able!" he blurted out. "Ought to! Sure, they ought to. A cobbler ought to be able to cut out your appendix. He knows how to slice up leather with a knife. But you wouldn't call on him to do the job, would you?"

"Say, listen. What would you say if I told you that the most successful truck agent I know also distributes passenger cars and farm tractors. But, if he caught one of his passenger car salesmen trying to sell a prospect a truck or a tractor, he'd cut loose on him with a verbal barrage that

would make that salesman long for a place on the front line in France, where things would be nice and peaceful and quiet in comparison.

"Not only does this agent keep the passenger and truck salesmen to their own lines, but he has a separate man for every make of car and truck he handles, and he sees to it that every man knows his individual machine forward and backward, inside and out, theoretically and practically. And he makes it his business to know that each of his truck salesmen knows why *his* truck is the best value on the market at its price, and why it will save its purchaser money over his present haulage methods, whatever they may be. And the salesman has to know facts and figures, too, no glittering generalities go with him. The salesman's line of talk has to stand the acid test of the Spanish inquisition of modern business. It isn't a case of just getting by. It's a case of putting it over strong, with no chance for a comeback.

"He helps his truck salesmen get their sales dope, the figures, the ton-mile hauling costs of every commodity under the sun that is hauled anywhere at any time by anybody in his district. And he has weekly meetings of his staff, when every scrap of new information is dished up, sorted out, picked to pieces, and filed for future use as selling ammunition. Why, I've seen him jump off a moving street car at the risk of his neck just because he saw a team hauling something that ought to be hauled by motor truck, so he could trace it down, get figures on it, and send a man out after the prospect with real chances of success. And this salesman can usually tell the prospect something about his own hauling costs that he never dreamed of.

"He never sends a truck salesman after a prospect till the salesman can tell the prospect some motor truck facts pertaining to his own business that will interest him right off the bat. In other words, figures that will show him where he can increase dividends by using his make of motor trucks. That's where you've got to hit 'em. Right on the point of their pocketbook's jaw. And to be able to do that he's got to get his selling dope first-handed. He's got to dig out where the digging is. See what I mean?"

J. Pusher Sellem didn't stop talking for an hour, and when he had finished the gray haired man had heard a lot of things that he never even dreamed existed before.

"And now listen," concluded J. Pusher, and over his face crept the radiant smile that had made him staunch friends from coast to coast, among bartenders and ministers, truck drivers and bank presidents, "the trouble with you and your boys is that you sat back a little too easy on the soft cushions of a previous success. But that won't sell any ABCs, and that's what we've got to plan to do. But you're going to sell 'em, sell 'em faster than you ever sold the Speedalongs.

"I'm going back to my hotel now, I'm about out of ammunition. But at 6 p. m. I'll be waiting for you and those two stars of yours right in the middle of the gilded lobby of the village inn, and we're going to have a little dinner that will make Herby

Hoover good and sore. But I'll chance that. And together we'll get things going along the right track, and after that there won't be nothing to this game, nothing a-tall."

* * * * *

The big fellow who sauntered into the show and salesroom of the ABC Truck Sales Company looked as though he might be a prosperous business man interested in the purchase of a motor truck.

But six months had not dimmed the recollection of the last time he was in town, the lecture, the dinner, and the good advice and council that went with it.

"Hello, Mr. Sellem," came from the gray haired man who walked briskly forward from behind the office railing to greet him. "Where are those trucks I ordered? Bring 'em with you?"

"Well, no," came from the smiling J. Pusher. "But they're on the way. Your drivers got 'em yesterday. They ought to be kicking up the dust along about Happy

Center by this time. They'll roll in here tomorrow, twelve of 'em. What you going to do with 'em when you get 'em?"

"Do? Do with them? You might better ask what I would do without them? If I don't get 'em pretty soon I'll have troubles of my own, believe me. Those boys of mine sure have gone after this business with teeth since you showed them the way to start. They're just eating 'em alive these days. All they needed, all any of us needed, was a swift jolt and a little showing. And I will say you furnished both."

"Which is why I am sure glad I made you that little visit," smiled the big fellow. "One little face-to-face talk is worth more than a hundred over the typewriter, any day, I claim."

And what these two did the rest of the afternoon really doesn't concern us. Suffice it to say that Walter Johnson was on the mound and Washington won in spite of Ty Cobb's three-bagger in the ninth.

A Labor-Saving Device Used by the City of Cambridge, Mass.

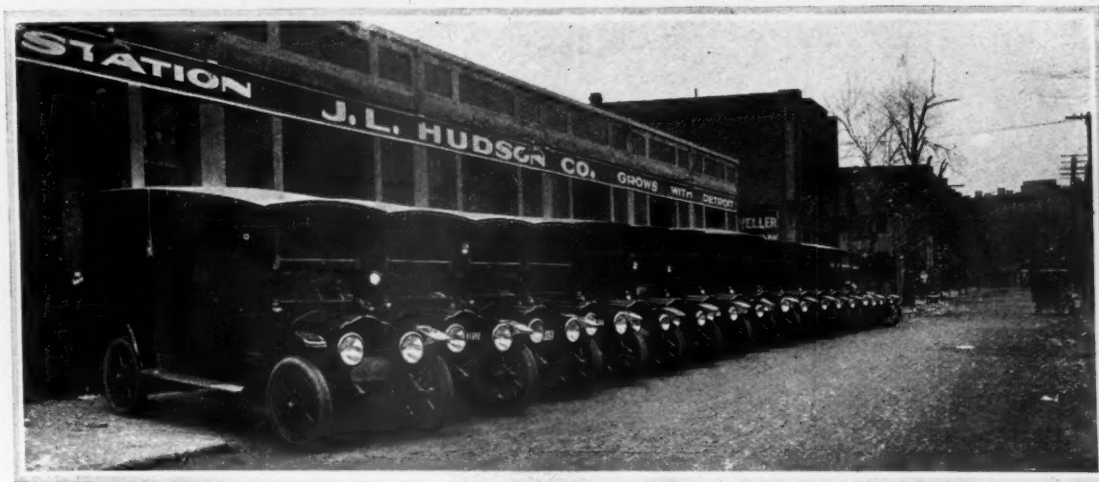
L. M. Hastings, City Engineer, of Cambridge, Mass., and his associates, have now in operation a sewer-cleaning device that saves man-power. It consists of a 3½-ton Federal truck equipped with a large steel dump body of three cubic yards capacity, and a power dumping hoist. The special machinery for excavating the material and loading it into the truck body was made in a local machine shop from drawings made in this office.

The general type of this machinery is somewhat similar to that made and in use by the Public Works Department at Pawtucket, R. I. The excavating is done by a bucket of the "orange peel" type, having four jaws, which are opened and closed by compressed air. This bucket is dropped into a basin and opened before it touches the material. It is then dropped into the material and closed. This fills the bucket, which is then hoisted by the chain, swung over and opened, which drops its contents into truck body.



Power to drive the small air compressor is obtained by a sprocket-chain take-off to the left from the truck propeller shaft. Power to drive the bucket hoist is obtained by another take-off to the right by a sprocket chain from the same shaft.

A Highly Developed Department Store Delivery System



The Unique and Effective Practice of the J. L. Hudson Company, Detroit, Michigan

By LEN. G. SHAW

THE J. L. Hudson Co., Detroit, Mich., operates one of the most comprehensive auto delivery systems in the country, along lines so unique that the attention of department store traffic managers all over the country has been attracted, and many of the features are being copied elsewhere.

This company has one of the largest general merchandising establishments in Detroit. Its delivery system direct, aside from the mail order business, covers a territory approximately 25 by 40 miles, the Detroit river and Canadian customs duties forming a barrier to trade expansion to the east. All of this territory is covered once daily, and that part lying in the city and immediate suburbs has three deliveries each day, which are conducted on an express schedule.

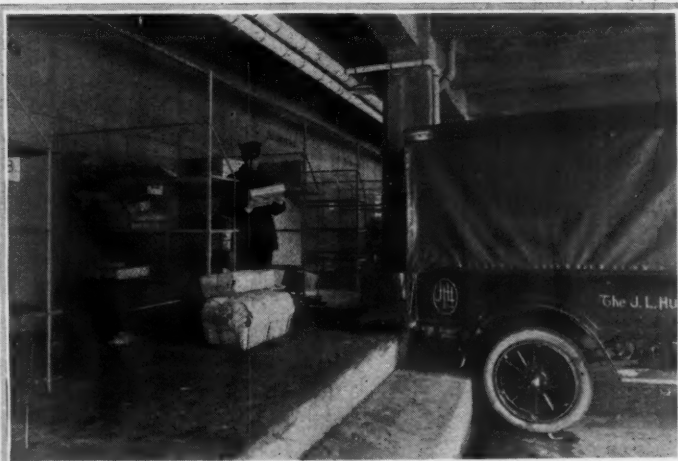
Forty-six machines of various types are employed, from 1½-ton trucks down

to light delivery cars fitted with enclosed bodies, according to the district served and the nature of the demands that must be met. The business handled ranges in volume all the way from 6000 to as high as 24,000 parcels a day, this latter representing the peak to date, and with such variations in size and weight as only a department store could provide.

With this volume and the wide range in the daily output, expedition is demanded every minute. It is obtained, too, in spite of the fact that the very first step is in defiance of every cherished tradition of delivery as applied to general merchandising. This departure was partly from choice, but largely through force of circumstances, and because it bears such an intimate relation to the final steps in the delivery problem, the manner in which it has been worked out is worth detailing in order that a proper understanding of the entire system may be gained.

With rapidly increasing business the company, in spite of immense additions of floor space, found its shipping quarters entirely inadequate. It was face to face with the alternative of giving up valuable room to the handling of deliveries or taking the department outside, and it chose the latter. Accordingly, a quarter of a mile from its store the company had built a distributing station, where every parcel destined for delivery finds its way in the first step on its journey.

So radical was this departure that the wiseacres shook their heads and predicted failure. But J. A. Hanley, superintendent of deliveries, and a veteran in the transportation business, had the courage of his convictions, and he was backed to the limit by his superiors. The plan has been in operation only a few months, but its practicability has been demonstrated so conclusively as to leave no doubt in the minds of delivery super-



The Loading Platform With Numbered Stalls. The Height of the Platform is Practically on a Level With the Floor of the Truck Body



To the Left: Transferring the Load of the Trailer to the Endless Belt Which Conveys the Packages to the Sorting Room Above.

Below: A View of the Sorting Room. Packages From Below Are Being Carried by the Belt Past the Sorter.



intendents of wide experience who have investigated the plants and its operations with a view of gaining ideas.

The value of delivery service, as every one familiar with the subject knows, lies largely in its continuity, and the sense of satisfaction that comes to the customer from the knowledge that if a parcel is promised on a certain delivery it is bound to arrive on schedule. Also, if maximum results are to come to the company there must be no avoidable interruption of the flow of traffic. To make this possible, even with its widely separated bases of operation, the company has put into practice a plan that runs with the smoothness of clockwork.

To illustrate how this is accomplished, let us take a package and follow it through the store to the distributing station and on to the customer.

From the sales clerk the package goes to the checker's desk, where it is examined, checked and wrapped, and collected immediately by a bundle boy to be dropped into a chute leading to the shipping room. Bundle boys are not supplied with baskets, hence they must make frequent trips to the chutes, consequently there is an even flow to the sorting tables in the basement.

A traveling belt conveyor leads from the chutes to the shipping room, and thus it is possible to transport bundles at the rate of one a second or even faster. The bundles are automatically dumped on sorting tables, and each is given a route number that guides it on its course to the purchaser's door, all checking and listing having been previously attended to, as noted. Once marked with the route number, the packages are deposited

in crates or trunks, each having a capacity of 75 to 100 bundles. An escalator carries these trunks to the sidewalk above, and they are immediately loaded into trailers, this being the first point where the automobile enters into the operation.

Herein is a distinct departure from custom. The familiar scene of a sidewalk piled high with boxes and baskets, with long rows of waiting vehicles lined up while drivers and jumpers hurry about feverishly, is done away with. In its place there is a steady flow of crates into a trailer backed up to the curb. Every ten minutes an auto runs up, backs an empty trailer into place, couples on to the one filled with crates, and is on its way to the distributing station a quarter of a mile away. The trailer hauled away may be piled high with merchandise or it may contain only a few packages, but it goes on an every ten-minute schedule all day long. No waits are permitted, and hence possibility of congestion at

the distributing station is minimized to a negligible point.

At the distributing or shipping station an empty trailer is substituted for the loaded one and the tractor starts at once on its way back to the store.

From the trailer the crates are removed and their contents placed on a belt conveyor that leads to the shipping room proper. Through the middle of the long, light shipping room, at right angles to the belt conveyor previously mentioned, runs another belt. There is a narrow aisle on either side, flanked by sorters' bins. When a trailer arrives a warning whistle is the signal that sorting is about to commence. The parcels are deposited singly on the long belt, each having been numbered according to route at the store, as previously described. Each sorter selects from the belt parcels bearing the numbers of routes with which he is concerned, and each parcel goes into a rack bearing a corresponding number.

The sheet writers work in an aisle directly behind the sorters' bins, from which they transfer the packages to the drivers' bins or racks. Here all packages are listed. Efficiency again manifests itself at this point through the use of separate compartments for specials, requiring a definite time of delivery; C. O. D. parcels, fragile goods and ordinary O. K'd parcels.

This leaves the driver with nothing to do but sort his load for the route, this being simplified by the employment of shelves so that the work can be subdivided most advantageously. After being sorted the parcels are placed in small hampers, each of which represents a given territory—perhaps a street or a block—so that when the section is reached the driver will lose no time locating the parcels.

The driver and his helper do not enter the shipping room proper. All operations are carried on under one roof, so he backs his machine up to the designated stall or compartment, and finds his parcels ready to be loaded, although he is cut off from the sorting room by heavy wire netting. Thus he is free to look after only his own load, and the confusion that would otherwise result is eliminated.

At the appointed hours, 9 a. m. and 1 and 4 p. m., the autos are off on their routes, returning to the distributing station as soon as they have disposed of their loads.

"Soldiering" on a route is discouraged in a practical manner. The man whose run for a given delivery happens to be short has nothing to fear from getting back to the station early, because he



Sorters Are Shown Placing Packages, With Numbers Attached, Into Bins From Which the Drivers Take Them Later

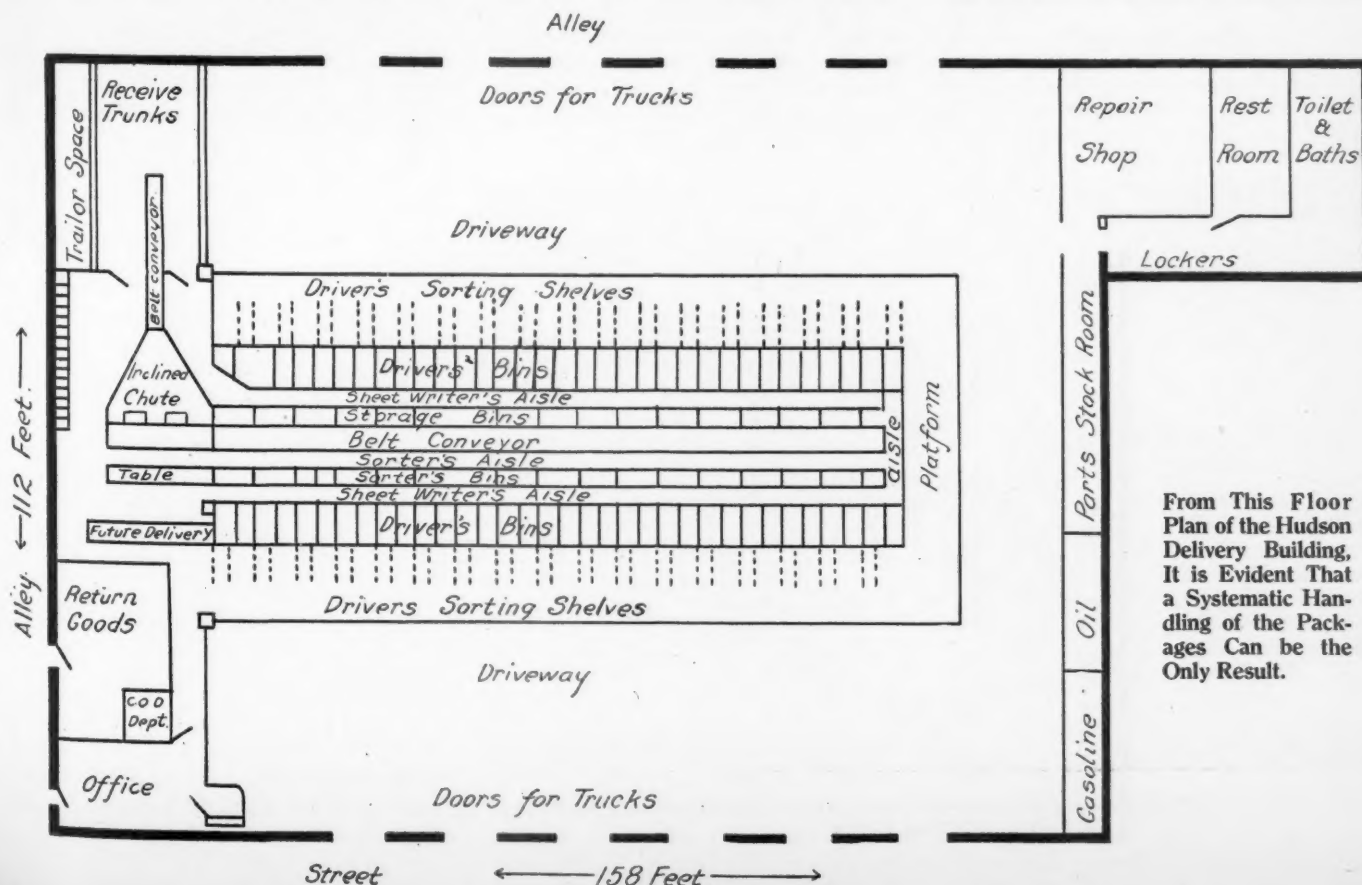
knows that he will not be chased out to help some other driver who happens to be overloaded at the time. His turn will come some day, and he will have to handle it alone; but until then he is let alone. The result is that one day a man may work six hours and the next twelve, it being aimed to average nine hours daily per man without overworking them.

In its arrangement the distributing station is a marvel of efficiency. It fronts 158 ft. on Beacon St. and is 112 ft.

deep, with an alley at one end and across the back. The building is of fireproof construction, with plenty of light and

At the west end are the offices of Delivery Superintendent Hanley and his assistants. Back of these is the receiving station, to the platform of which the trailers are backed, and the room where the first step in the sorting process is instituted.

Through the center of the building, from east to west, runs the sorting room



From This Floor Plan of the Hudson Delivery Building, It is Evident That a Systematic Handling of the Packages Can be the Only Result.

and drivers' bins, 34 in number, elevated sufficiently so that the floor is on a level with the platforms of the trucks, a concrete step being provided to regulate the distance drivers can back their machines. There is plenty of room for maneuvering cars on both sides of the distributing room, it being possible to store fifty-eight cars here, so that no time is lost in getting into position or away again.

At the east end, where all cars enter, are located gasoline and oil stations, and the room where a full line of parts is kept adjoins. Close at hand is the shop where all repairs are made, even batteries being recharged.

There is a locker room for the drivers, toilet, shower baths, and a commodious lounging room is being fitted up.

No reasonable expense has been spared in equipping the distributing station, with the utmost in delivery efficiency always in mind. Careful records of each day's performance are kept, and it is possible at any time to tell exactly what each machine is doing.

However, as Superintendent Hanley points out, it is no more a question of ton miles in department store delivery than it is of laying a parcel down to a customer when promised, hence every energy is concentrated on handling the flow of business expeditiously.

chine is running on hard-surfaced roads the flange clears the ground by several inches, the truck, of course, riding entirely upon the rubber tires. When run from the hard street into the orchard the hard tires sink into the soft earth until the flanges become engaged, when the machine runs along, on account of its greater bearing surface, just as does the wide-wheeled tractor. Provision has also been made for the added traction which the machine naturally needs when working on soft ground, this being obtained by a series of cleats which have been fastened diagonally upon the outer surface of the steel flanges attached to the rear wheels.

Very recently a demonstration of this novel flange wheel was given in Los Angeles, California. The truck equipped with the flanges proceeded over the soft ground to the loading point, where 145 boxes were piled upon the truck and the trailer, and at sixty pounds to the box it will be seen that the gross weight of the load was about 8700 lb., to which must be added the weight of three men, who rode on the truck. With this load

Equipping the Motor Truck for Orchard Work

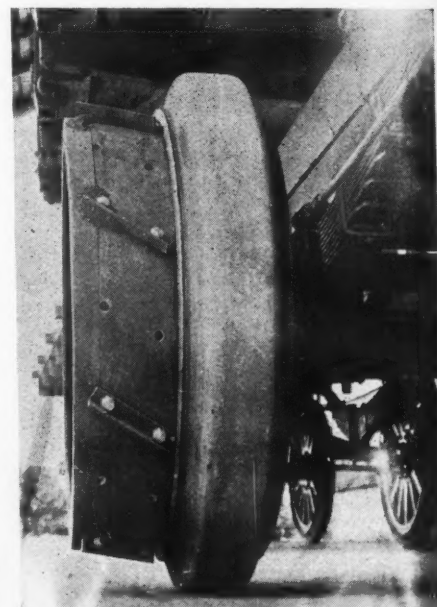
By ALBERT MARPLE

SOMETHING entirely new in the way of an attachment for the motor truck has made its appearance in Los Angeles, California, this being in the form of a heavy steel flange, which is attached to the outer side of the various wheels of the machine, and which makes it possible for the truck to be used satisfactorily and efficiently upon the soft ground of the orchard or the grain field, and even the vegetable patch. By the use of this device the truck is enabled to move as readily over the soft ground as it does along the boulevard, one feature being that the flange does not interfere in the least with the operation of the vehicle on the hard-surfaced roads.

Heretofore the hauling of the product to the packing house was done almost wholly by horses, this being caused through the fact that the trucks have

not been able to run on the soft ground of the groves. When the trucks were tried out in western groves the difficulty of operating the ordinary-tired machine in the soft earth soon presented itself. The ranchers had just about decided to give up the attempts at using the truck, when this new invention, used on a 2-ton Republic truck, was brought forward. This flange wheel, needless to say, put a different light on the use of the truck in orchard work.

The flange wheel which is used in this novel way is made of very heavy steel, being possibly 2 in. in thickness and 6 in. in width, extending outward from the felloe of each wheel and being fastened securely in place. This machine thus equipped looks as though it had been prepared for use on the railroad rather than in the orchard. One of the points about this flange is that when the ma-

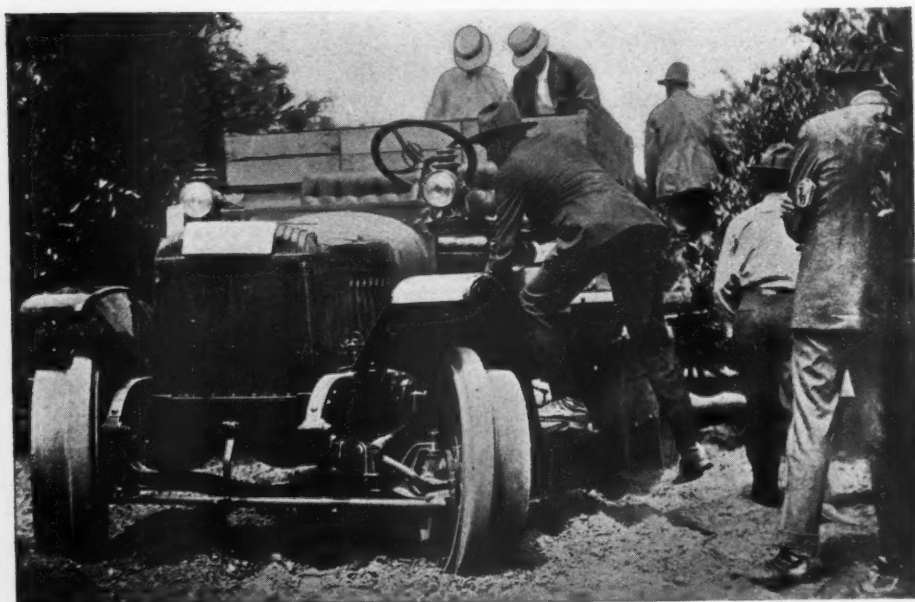


Close-up of a Rear Wheel

the truck and the trailer made their way out of the orchard and up the lane leading to the asphalt road, thence along the road to the packing house—and all this without a stop.

Another point that promises to be vital to the rancher is that this new method of hauling does away with a great deal of the jar to which the fruit heretofore has been subjected. As a rule the fruit is hauled to the packing house in ordinary steel-tired vehicles. The trucks invariably ride on rubber, and it is claimed that the substituting of the rubber for the steel tire will do much toward maintaining the perfect condition of the fruit for packing and shipping.

This outfit will lighten harvesting work along many lines and will surely "speed up" the work of gathering in all kinds of crops.



The Front Wheels Are Fitted With Smooth Flanges, While the Rear Are Channeled to Give Increased Traction

A New Angle to Inter-City Hauling by Motor Trucks

Central Terminal in Large Cities Adequately Supplied With Loading Facilities and Used by a Number of Trucking Companies Produces Greater Profits for All Concerned and Increases Radius of Motor Truck Delivery

By C. P. SHATTUCK

ONE of the direct benefits of the war will be the establishment of lines of motor trucks operating over a considerable area and linking cities and towns. While there has been some inter-city trucking it remained for the Return Loads movement to foster the use of trucks operating between cities and carrying practically capacity loads each way. This hauling of merchandise by automobiles is not new, particularly what may be termed package expressing. A number of individuals have attempted the package express and have failed to make good because no consideration was given to the necessity of operating the truck with a full load going and coming.

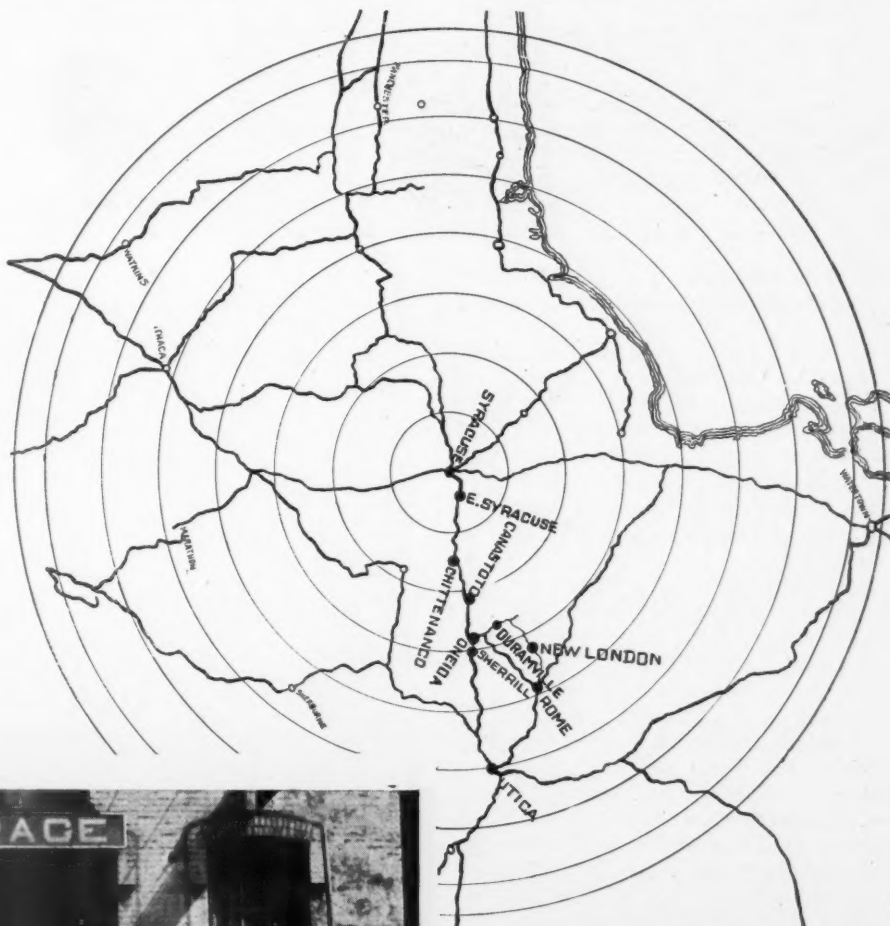
In a number of cases these men have sold out at a loss to others and it is not infrequent to note the successors to failures achieving success. In practically every instance where the trucks are making money it will be found that the operators and owners are conserving the energies of the truck; that is, are not using a 3 or a 5-ton truck to run around a city picking up 10- and 15-lb. packages but employ the machine to haul between the terminals. Collections of the small material is made by what is termed pick up wagons or trucks and these units are also used to deliver.

This pick up method is practiced by one large trucking concern operating out of Rochester to Buffalo and Syracuse and at the last named place the company has unintentionally laid what appears to be the foundation of the central terminal station by sharing with four other truck-

ing concerns a terminal or "Inter-Urban Auto Trucking Terminal," as it is called.

In addition to the Rochester trucking company four others use the terminal for their Syracuse headquarters. These are the Central New York Auto Express, Inc., The Fulton Auto Express, the Auburn & Syracuse Express, and Seeley, Moody & Seeley. These companies serve a considerable territory.

Seeley, Moody & Seeley, also known as the Syracuse & Utica Auto Express, operate a fleet of three machines between Syracuse and Utica, making stops at East Syracuse, Chittenango, Canastota, Oneida, Sherrill, Duramville, New London, Kenwood and Utica. Trucks leave Syracuse from the Walton street terminal at 8.30 each morning and another truck leaves Utica at approximately the



Map Showing Radius of Seventy-Five Miles From Syracuse

Indicating the wonderful possibilities of operating trucks loaded to capacity in both directions. Much of this territory is now being developed by five trucking companies, operating from a common base in Syracuse.

same time. The truck leaving Utica remains in Syracuse overnight. The distance is approximately 51 miles and the company features the fact that connections are made for Rochester, Buffalo and Watertown. In this connection it should be noted that such connections are possible through the central terminal as will be explained.



The Pick-up Truck Driver About to Leave the Terminal to Collect Merchandise for the Empire Motor Transport Lines, Incorporated

The Central New York Auto Express, Inc., with headquarters at the Syracuse terminal, Walton street, operates two Graham Ford units between that city and Watertown, 72 miles distant. One truck leaves Syracuse for Watertown at 9 in the morning and the other car departs from Watertown at about the same time for Syracuse. These trucks also stop at Oneida and Rome and intervening points as well as make connections at Watertown for Henderson, Alexandria Bay, Sackett's Harbor, Chaumont, Cape Vin-

Lines, Inc., and the Central New York Auto Express, Inc. The remaining concerns use the terminal, paying a certain proportion of the expenses. The Central New York company maintains a woman in the office to look after their interests while the Empire Motor Transport Lines are cared for by a manager. Both take orders for the other companies and answer inquiries relating to the operation, costs, etc.

All of the companies referred to are carrying practically capacity loads in

of the delays for pick ups and deliveries at the intervening points. By employing two trucks, one leaving Watertown and the other Syracuse at the same time, and meeting half way and changing drivers, each machine would make 72 miles, a day's work for any driver. The method would enable a little missionary work or the development of new business by the driver. The round trips of the other are not beyond the capabilities of the drivers working 10 hours the day.

All of the companies are very busy and each representative admitted they were making money although no figures were obtainable. The manager of the Empire lines, and who has extensive experience in transportation, is enthusiastic over the wonderful possibilities afforded by inter-city hauling with motor trucks. He believes that by the time the war is over there would be established throughout the East a large number of trucking concerns and that central terminals and possibly warehouses would be established in the cities.

Using Large Trucks for Pick-up Work a Waste of Money

"The greatest handicap experienced by the concerns such as make their terminal here," said the Syracuse man, "is that



Two of the Seldens Used by Trucking Company Operating Between Auburn and Syracuse

cent, Carthage and intermediate points. Connections are made at Rochester for points north and south and at Buffalo for Erie, Cleveland and with the Great Lakes Transportation companies. The last named, Rochester and Buffalo, are made through the motor trucking company operating to these places and to Syracuse.

Large Trucks Used for Operating Between Terminals

The Fulton Auto Express employs a 3½-ton Federal and runs to Fulton from Syracuse, a distance of about 52 miles the round trip. The truck leaves Fulton, its headquarters, at 6 in the morning, reaching the Syracuse terminal after 8 and after collections, etc., returns to Fulton. It serves Phoenix and Three River Point as well as a number of intervening points. This concern is so busy that the truck makes three round night trips each week.

The Auburn & Syracuse Auto Express, Stott and Jackson, owners, and who by the way drive their own cars, make Auburn their headquarters. Both trucks go to Syracuse daily and both are 2-ton Seldens, although the concern also uses a 1½-ton Federal. Among the intervening towns served are Camillus, Elbridge and Sennett. The trucks leave Auburn, 40 miles from Syracuse, about 8 in the morning, and leave Syracuse for home about 1.30 in the afternoon.

Of the five companies operating out of Syracuse but two are really making the Syracuse terminal their headquarters, these being the Empire Motor Transport



The Republic Truck Used by Company Operating Between Syracuse and Utica
So great has been the demand for its services that it cannot be spared to be relettered

both directions but with the exception of the Empire Motor Transport Lines utilize their trucks to pick up, whereas the Empire employs a Ford unit. The company also has an arrangement with another truck operator to give part time to the collection and delivery of merchandise.

In analyzing the hauls of the five companies we find one, that operating between Syracuse and Rochester, 110 miles, employing its large capacity trucks simply for hauling between the respective terminals. The next longest haul is 72 miles or 142 for the round trip, the Watertown route. This means approximately 14 hours driving to say nothing

they use 2- and 3-ton trucks to run about the city picking up packages or what we term express matter. Some of the trucks here will be gone a couple of hours or more and during that time burn considerable gasoline and oil to say nothing of the wear and tear on the tires and mechanism. This time is wasted, money wasted, and should be devoted to building up new trade and operating the trucks between the cities or on the long hauls.

"I venture to say if these men could figure their exact costs of picking up and delivering the small stuff, including their time, they would be surprised. What is needed to make these trucks pay a bigger profit is the establishment of a real

central terminal, a terminal equipped with the type of loading platforms that will permit a number of trucks to load and unload in the minimum of time so that the truck can be on its way. You know a truck must be kept moving if it is to earn a dollar.

Terminals Should be Ably Managed

"The terminal should be run by an individual or a company. It should be up to date, have modern equipment and a live wire for a manager, a man familiar with transportation problems and capable of earning and retaining the confidence of shippers. It will be essential for the terminal to operate a truck or several light trucks for picking up and delivering the small package material, and possibly a large truck could be utilized for the heavier material. There should be a system for sorting the goods and placing them convenient for the outgoing trucks.


"The terminal could handle very successfully and economically the receipts, shipping forms, manifest, etc., taking all of this clerical and detail work away from the trucking companies, and handling the work of six or seven or even more concerns could do so considerably cheaper than is being done at present. Some form of system could be introduced that would eliminate much of the detail not involved.

"Such a plan would, I am sure, enable all of the concerns to greatly extend the scope of the deliveries and collections,

Syracuse Station
 Warren 7929 Leaves at 8:30 A. M.

SEELEY, MOODY & SEELEY
 DAILY
 Syracuse & Utica Auto Express
 136 Walton Street

STOPS

East Syracuse Chittenango Canastota Oneida Sherill		Duramville New London Kenwood Rome Utica
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CONNECTIONS ARE MADE AT
ROCHESTER, BUFFALO and WATERTOWN

Utica Station
 Phone Utica Leaves at 8:30 A. M.
 408 John St.
UTICA, - - N. Y.

One of the Placards Circulated Among Shippers by a Company Operating Between Syracuse and Utica

prices, for eliminating the price cutter, an evil with which we must sooner or later contend. As an organization we could command better prices than a small company and similarly insurance, legal matters, etc., could be attended to

Truck Owners' Conferences to be Held in Nineteen Cities

During the next 10 months the Truck Owners' Conference, Inc., will conduct 2-day conferences in nineteen different cities, it is announced by Chairman Harold P. Gould. September 19 and 20, the first one will be held at the Board of Commerce Building, Detroit. The program will include speeches by several Detroit truck experts and moving pictures of a few of the more efficiently operated truck fleets in Detroit and Chicago.

Operators of both large and small trucks will recount their experiences in using methods that reduce operating expenses and general discussion will take place on the facts brought out. These will be a feature of all the conferences, the purpose obviously being to secure greater efficiency in truck operation throughout the country. The subjects discussed range from "Loading and Unloading Methods that Save Time" and "Hauling More Goods with Fewer Units" to "Simplicity and Advantages of Keeping Costs on the National Standard Truck Cost System."

Some of the speakers come from as great a distance as a thousand miles.

The conferences will be open to all interested truck users. No fee of any kind is to be asked. They are not open however, to the trade, except where representatives of it are specially invited.

Chairman Gould referred to the conferences in these words: "At this time when freight cars are at a premium the development of more efficient ideas in motor truck transportation is a vital factor in the conservation of freight car space. Every foot of space so saved represents one more shell to harass the Hun, or another bit of flour for our Allies. Thus the conference is a patriotic movement toward helping to win the war."

The various cities scheduled for conferences extend from coast to coast and each has been chosen because of its central location whereby as many cities as possible especially in that locality may be represented at each conference. Former conferences held in New York City, Chicago and Detroit have been such unqualified successes that the outlook for successful conventions in the nineteen conference cities is most promising. It is expected that hundreds of truck operators, both large and small, will be in attendance at each convention. Further information may be obtained by addressing the Truck Owners' Conference, Inc., at 327 S. LaSalle St., Chicago.

Metal Hose & Tubing Co., Brooklyn, N. Y., has begun the construction of an addition to its plant. The building is of brick and will give the company 5000 sq. ft. additional for manufacturing purposes.

AUTO TRUCK EXPRESS

TO ROCHESTER, BUFFALO AND WATERTOWN

Reliable Auto Truck Lines have formed an association with terminal and transfer point at 136 Walton St., Syracuse, N. Y. (Phone Warren 7929).

We Deliver Your Goods the Day You Ship Them

Trucks leave Syracuse for Watertown and Watertown for Syracuse and Syracuse for Oneida and Rome at 9 A. M. Syracuse for Rochester and Buffalo at 5 A. M. daily. Stops made at all intermediate points.

Connections are made at Watertown for Henderson, Sacketts Harbor, Chaumont, Cape Vincent, Clayton, Alexandria Bay, Carthage and all intermediate points.

Connections are made at Rochester for points north and south; at Buffalo for Erie, Cleveland and with the Great Lakes Transportation companies. Telephone terminal if shipping point is not listed. as new lines are being added rapidly.

Express rates for immediate delivery. Special freight rates for slower delivery upon application.

All goods are insured against fire, theft and accident.

Central New York Auto Express, Inc.

Syracuse Terminal, 136 Walton St., Phone Warren 7929.

Watertown Terminal, 501 State St., Cor. Mechanic. Phone 2528.

Empire State Motor Transport Lines, Inc.

Rochester Office, 404-6 Arlington Bldg. Phones Main 6963; Stone 2525.

Buffalo Terminal, Oak St. Phone Seneca 2297.

Syracuse Terminal, 136 Walton St. Phone Warren 7929.

and one of the many advantages of the plan is that with the increase in companies the greater the radius of delivery for the shipper. Extending the plan to other cities, say at Rochester and Buffalo, for example, in time there could be linked up a transfer method enabling a manufacturer to ship over 250 miles by motor truck.

"These concerns could be welded into a unit for the purpose of combatting adverse legislation, for the maintaining of

by the terminal head or the association. I may be too optimistic as to the possibilities of such a plan but I think those who carefully study the proposed plan will see its practical features. Insofar as making the terminal pay, a little figuring by one familiar with the collection and delivery of package and other reasonably light material, will convince him that there is money to be made for the terminal man and money to be saved for the truck man."

A Sample of the Publicity Matter Sent Out by One of the Companies.

An intensive publicity campaign is essential to building new business

Post Office Department Gradually Eliminates Contract Haulage

WITH the recent letting of a contract for building a Post Office Department garage at Columbus, O., one more city is added to the increasing list in which Uncle Sam will do away with contract haulage of mails and will run his own motor trucks in that service. One by one in the past three years the larger cities of the country have undergone this change, until today the department is handling all its mails in its own motor trucks in New York, Philadelphia, Boston, Brooklyn, Chicago, Detroit, Indianapolis, St. Louis, Pittsburgh and Nashville, and Columbus will soon be added to the list.

In these cities the department not only owns its trucks, but has established its own garages, manned by its own mechanics and repair men, who keep the trucks efficient for the work they must do without fail.

Approximately one thousand motor trucks have been added to the department's list through taking over the contract transportation in these cities, and gradually every large city in the United States will be added to the list, each one calling for more motor trucks for this work.

Taking the transportation of mails into its own hands, the post office department is enabled to do much more efficient work in rush periods and some startling records have been hung up in

the larger cities through efficient transportation of mails during holiday and other rush times.

The subject of making local deliveries for merchants by means of parcel post has been considered seriously by the post office department. It accomplished this very successfully for Pittsburgh merchants at one time last winter during a chauffeurs' strike.

It is not improbable that the post office department could make most deliveries for merchants cheaper than the merchant now conducts this service, and a development along this line in the near future may be one of the interesting conditions brought about by the war.

* * *

Figures recently submitted to Congress by Fourth Assistant Postmaster General James I. Blakslee, covering actual operating expenses of the principal motor truck parcel post routes are very interesting and informative, and when compared with the income from the routes they present a very strong argument in support of General Blakslee's project to put on thousands of rural parcel post trucks and pay for the construction of modern concrete or brick highways for their use out of the profits derived from the use of the trucks. The project was outlined at length in the July "Commercial Car Journal."

The figures are shown herewith in tabular form, and are a very complete analysis of truck performance and cost.

One of the most interesting facts brought out in the committee hearing on this project was cited by General Blakslee, who stated that there are over one thousand routes east of the Mississippi River on which motor trucks may travel which can not at present be reached by either rail or water transportation. The routes between Washington and Leonardtown and Baltimore and Solomon's Island, on which motor trucks are already carrying parcel post, are of this type, and the fact that the first named route showed a net profit over all expenses of \$35,754.21 in June, and the second a profit of \$30,049.58 during the same month, shows what may be accomplished with proper service by motor truck.

Profits during June on some of the other lines now covered by parcel post trucks were as follows:

Washington to Baltimore, \$19,218; Baltimore to Lancaster, Pa., \$16,915; Philadelphia to Washington, \$22,350; Savannah to Statesboro, Ga., \$255; Columbus, O., to Zanesville, \$1,385.

The post office department is taking to the motor truck more decisively with every succeeding day, and it is a certainty that the next few years will see a vast expansion of its use in handling mail matter of every class in both intracity and intercity transportation.

Post Office Department, Fourth Assistant Postmaster General
Division of Rural Mails—Motor Truck Service
COST OF OPERATION FROM DECEMBER 1, 1917 TO MAY 31, 1918

ROUTE No.	TERMINI	GASOLINE		Grease and Oil	Tires and Tubes	REPAIRS		Accessories	Garage	Salaries of Drivers	SUPERVISION		Interest	Depreciation	Miscellaneous	Total Cost	Total Mileage	Cost per Mile	Miles per Gal. Gas.
		Gallons	Cost			Labor	Material				P. O.	Dept.							
10,738	From Philadelphia to Atlantic City	2,888	\$686.84	\$51.44	\$400.28	\$335.60	\$43.55	\$16.40	\$145.72	\$942.03	\$222.00	\$165.72	\$33.05	\$368.48	\$154.66	\$3565.77	24,565	.1452	8.51
13,283	From Baltimore to Solomons	2,866	697.97	92.83	373.77	132.31	42.04	25.78	141.74	1068.82	88.31	425.31	52.63	405.34	462.61	4009.44	25,573	.1568	8.92
13,293	From Washington to Leonardtown	3,814	874.94	163.72	695.85	358.95	327.48	....	111.76	1432.26	32.75	555.19	61.67	496.13	168.32	5279.02	33,524	.1575	8.79
13,259	From Washington to Baltimore	3,345	804.46	151.07	391.70	277.85	47.92	23.53	125.11	1578.50	134.31	477.68	52.13	445.37	24.39	4534.02	29,690	.1493	8.88
13,300	From Baltimore to Lancaster	2,497	671.09	143.50	401.36	64.01	5.89	8.03	67.00	963.87	58.10	287.79	34.37	383.79	118.56	3207.36	25,585	.1254	10.25
13,301	From Philadelphia to Washington	4,863	1247.01	148.04	825.62	189.05	60.22	40.72	216.70	1856.04	276.00	597.61	66.96	737.81	456.09	6717.87	49,187	.1366	10.11
21,271	From Savannah to Statesboro	516	134.82	33.29	127.49	3.90	.70	....	27.50	300.00	45.50	31.87	11.11	75.43	17.20	808.81	5,029	.1608	9.75
31,313	From Columbus to Zanesville	847	208.51	40.00	210.85	27.15	.30	2.00	29.33	287.21	3.70	37.23	11.19	119.87	....	977.34	8,658	.1129	10.22
	Totals and Averages	21,636	*	*	*	1388.82	*	116.46	*	8428.73	+	2578.40	+	3032.22	*	9099.63		.1442	
			5325.64		3426.92		528.08		864.86		860.67		323.11		1401.83		201,811		9.33

* Total direct expenses.....\$22,305.23. Cost per mile.....\$0.1105. Percentage of direct to total expenses.....77%

+ Total indirect expenses..... 6,794.40. Cost per mile..... .0337. Percentage of indirect to total expenses.....23%

Percentage of indirect to direct expenses.....30%

Commercial Car Selling Helps

Actual Parts of Chassis More Effective Than Photographs. Suggestions Offered in Trade Papers Invariably Are of Great Value. Looks Count. Salesman Responsible to Himself for His Salary

By FRANK FARRINGTON

OF course the man who buys a truck wants to see the truck and almost always he wants a demonstration, and he is entirely justified in the demand. What I have to say about something to show the prospect when making a selling call has nothing to do, however, with showing or demonstrating the truck. It has to do with calls on prospects when the truck is not at hand.

Have Something to Show

When you set out to call on a number of possible purchasers with a view to interesting them in letting you show them your truck and give them a demonstration at their convenience, usually you take along only a glib tongue and perhaps pictures of the truck. You can help the proposition a good deal by having something tangible to show.

A photograph is all right as far as it goes, but still better is a small part from one of the trucks, a piece of crankshaft, a set of bearings, a cross section of a tire, or some other part that is small enough to be carried and which is one of the vital parts, repair saving part or probably a fuel saving device. This gives the prospect something he can take in his hands and examine and it forms a concrete method of showing him the advantage of some important part.

When you depend entirely upon talk, you appeal to just one sense of the purchaser. That is hearing. When you have a picture, you interest him also to some extent through his eyes. When you have something in the way of a part, you enlist his sight intensively and you get his hands interested also. You are actually showing him how a certain advantage of the truck operates. You are showing him construction in a way that he does not get at it even when riding in the truck. Quality and advantage can be made manifest in actual parts shown in that way as is not possible in mere pictures or in a wonderful flow of language.

The man to whom you have shown something remembers the incident. The thing you have sought to prove sticks in his mind. If you have shown him how strong a crankshaft you have, how excellent an oil feed system, how good a tire, how strong a wheel, he remembers it because you did more than merely tell him with your tongue or with a catalog description.

Another thing: the prospect thinks more of the truck if you show that you think enough of it to take such pains as the display of parts evinces. He sees that you take a good deal of trouble in carrying along a part and unconsciously that influences him to believe in the importance of that part. It is not to be expected

that the prospect's interest is going to be greater than the salesman's interest. When you show that you are anxious to have your truck and its features given actual examination, you will find that they get more attention. A good many men even entertain suspicions when you try to sell them with talk and pictures, and you dissipate such suspicions by showing the goods in any way you can.

Making Tips Pay

I don't mean the tip you hand out to the pirate who grabs your hand bag from you as soon as you come in sight of the railroad station, nor do I mean the piratess or piratette who smiles into your hat when you come out of the hotel restaurant. I mean the tips you might be handing out to the men who are possible purchasers of trucks in your territory.

As you travel around and as you read the trade papers and business magazines, you see a good many ideas being used profitably by truck users in other communities, ideas that would prove profitable for the men to whom you want to make sales. If there is a man or a concern in your territory that ought to be using motor trucks but seems loth to adopt them, and persists in sticking to the old method, just make it a point to hand out to such a prospect every tip you can on the advantage of trucks in such work. Don't pass this information along as if you were doing it to place an obligation on the party, but just in a friendly way, as if, "Well, if I can't sell you a truck, I can show you what it is doing for others."

And that is only the more direct way of making the tip work for you. That is really a form of salesmanship. To help your cause with that prospect in the more indirect way, pick up and pass on to him tips about his line of business but having no reference to the trucking feature. Give him any helpful information you can and you may be sure it will have a tendency to make him feel an obligation to you.

Don't wait until you can go and see such a man to give him the tip. Write it to him. Send him good ideas at any time. Say, "Here is an idea I saw being worked out by a concern over in Jonesboro. It may help you." Your suggestion will be appreciated and you will find that this sort of thing is all the time bringing you and that prospect closer together. There doesn't live a man in business who is so infernally offish that you cannot get under his belt by some means, and this way of developing a friendly attitude is sure to have its influence.

Nobody likes to buy goods from a store whose goods it is necessary to weigh or count after getting them home. Nobody likes to buy from anyone whose word has

to be discounted. We want to be able to feel that the man who is selling to us is telling us the hundred per cent truth and that the goods will come up to specifications.

This is particularly true of anyone buying motor trucks, because the average buyer of a truck is none too well informed on the technical side of the proposition. He may, in fact, know nothing whatever about mechanics and be a buyer or a proprietor with chauffeurs for all the actual truck handling. If he knows nothing about trucks from experience in driving them, he must take somebody's word for what he buys.

If you make statements that cannot be backed up with facts and figures in the way of proof, you may be sure that the men who do handle the trucks will show up your deficiencies sooner or later. And if you are selling to a man who is a practical truck operator, you certainly may be sure that it is the height of salesmanship folly to make statements not warranted by the facts of the case.

It is better to miss a sale now and then because the truth doesn't make as good a showing as the other fellow's lie, than to lie and make today's sale, only to lose that customer's future business. When you set out to be truthful, be truthful all along the line. Don't stick to the truth only in the important features of the truck and become careless with the minor matters. If you get caught making a misstatement about a spark plug you will get credit for having lied about everything from the motor to the tail light. A buyer inclines to the impression that once a liar is always a liar.

You have heard some salesmen say of questionable methods, "All the rest do it." Well, let all the rest do it. All the better for the truthful man in the long run. If you could get all the rest of the truck salesmen in your territory lying about their trucks, I don't know of anything that would be more certain to bring you the business in the long run. Don't go on the basis of selling a man once by hook or crook and trusting to luck to get him back next time. The salesman who follows the hook-or-crook method usually ends in being a crook and getting the hook.

Stretching the truth about the horse power of a truck never increased the pulling force of the motor a pound. If your trucks are not good enough get some that are better, but don't try to make sales on merits that are not there.

The Way You Look

If a man doesn't look like a good business man it is harder for him to be one. As a matter of fact, if he does not look like one, he probably is not one. Most

men are no more prosperous than they look and a man who is out to sell his line of commercial cars should look as if he were successful in his business as if plenty of other people were buying from him.

This means that you ought to dress well and wear clean linen and be freshly shaven. To dress well is to dress so that people do not see anything objectionable about your clothes, but so that your clothes are responsible for helping create a pleasing impression.

To walk in on a high class business man, yourself looking like a cheap skate, is to give the impression that you didn't think it worth while to fix up for that man. When you present your best appearance you compliment the man you call upon.

There are many men who will take no account of your dress. Your appearance will have no effect upon them, but even with such men it will do you no harm to be well dressed. There are plenty who do notice your appearance if it is not good, while they might never give it a thought if it were good. You cannot afford to take the handicap that goes with an ill appearance. Good clothes are just one more influence working for you with the susceptible prospect, and there are not so many favorable influences that you need to waste any of them. Plenty of customers are won over by so narrow a margin that just the influence of clothes, even if small, will make the difference between sale and no sale.

The Pay of the Salesman

There is just one man who is responsible for the salary you receive as a salesman of commercial cars. That one man is yourself. You are responsible for the amount of your salary. It is not the proprietor of the business who fixes your sal-

ary and keeps it at a certain figure. On the other hand, the salesman who is constantly asking for a raise, regardless of whether he is entitled to it or not, is the last man on the pay roll whose salary goes up. He is lucky if it does not go down and out.

When a salesman is all the time earning more than he is paid, he is sure to be paid more. If the present employer does not increase his salary some other employer is going to see what he is doing and make him an offer. You cannot hide high class salesmanship from your own or from other employers. It is certain to show itself. If nobody else gives away the fact that you are a good salesman it will come out through the people to whom you make sales. A man buying a truck knows as well as the man whose truck is being sold, when the salesmanship is conspicuously efficient.

A man applied for a position as salesman for a house selling commercial cars over a large territory. He was asked what knowledge he had of truck salesmanship. He replied that in his position as buyer for a big concern, he had for years been called upon by all the truck salesmen in that section and he knew so well the faults of the men who had been trying to sell to him that he was sure he could eliminate those faults and make more money selling than he could as a buyer. He was given a trial and almost at once he jumped to the position of high man with the house.

The pay of a commercial car salesman will be what he makes it, even if he is working on a straight salary basis. Salaries have to be based on what the seller earns and he has no right to expect his salary to be advanced until he has shown he is earning more than he is getting. Your earnings for the house employing you must indicate what your earnings for yourself are to be.

United States May Produce Its Own Rubber

One of the essentials that has been very vitally affected by lack of bottoms in which to transport it is rubber. The United States has been affected less than probably any other country in the world, but even here it has been difficult for the manufacturers to get a sufficient supply of the raw material.

It is therefore of extreme interest that two eminent scientists of California, namely Prof. Harvey Monroe Hall and Thomas Harper Goodspeed working for the California Council of Defense, the head of which is the Governor of the State, have discovered that in California there are innumerable rubber-yielding plants that are growing wild.

Not only was the work of investigating the rubber-yielding properties of plants of the Sierras new, but the plants were new, with the exception of the fact that they were already noted botanically. Says the India Rubber World: "After a season of hard work, of segregation, of analysis, with samples of rubber, chewed out of the bark by Indian squaws, with hundreds of pressed specimens in the herbarium and with root sections and bark sections by the hundred-weight this season's survey is about to begin. It will consist of visits to the places where the plants are found in the greatest abundance, the examination of quadrats planted with seeds and cuttings last year and an estimate of the territory covered by these plants. These are to be followed by estimates as to the number of plants, the rubber contained in them, and their accessibility. What this will lead to commercially the experts do not even attempt to predict. They know that there are plants containing 2, 3, 7 and 10 per cent of rubber, and this means millions of pounds. Working for the Council of Defense, they plan to be thoroughly informed concerning this source of rubber. Then, were the United States for any reason cut off from its supplies of crude rubber, this source could be utilized promptly."

Although there is no immediate prospect for making use of this newly discovered source of rubber, yet it means that in case of war emergency the United States could immediately turn to this source and, it is believed, could make effective use of this very promptly.

This discovery brings us nearer to the ultimate goal of an absolutely self-supporting United States of America. Dye-stuffs are now produced in large quantities and of better quality than we formerly imported from Germany. Many lines of manufacture have been developed during the period of the war and will be put on a sound footing before the war is over. Now with a source of rubber in sight, there remain but two or three rare herbs which have not yet been found in this country but which probably will be or which will be replaced by some chemically prepared or otherwise cunningly wrought substances.



Two-Ton Menominee Truck Moves Household Goods of Ship Builder

This load was hauled at a profit to the transfer man and in competition with railroad rates from the old address to the city in which the shipyard is located

The Evolution of a Successful Trucking Business

A FIRM belief in the ability of the motor truck as one medium to the road to prosperity, a good system for handling business, carrying loads both ways and keeping the trucks operating twenty-four hours a day for periods of two weeks, are the outstanding reasons for the growth of the E. H. Scott Co., Erie, Pa., from a three-ton Kelly and a few teams in 1912, to nine large trucks in 1918. This concern is engaged in inter-city hauling between Erie and Cleveland, and in work for the Government.

Their success has been due to good trucks, good management, good service and hauling the full capacity of the trucks at all times.

The story of the beginning of this company reads with much interest, and is one of considerable value to a truck owner or any one contemplating establishing a motor truck line. It gives actual facts of how Mr. Scott began business and how he has made good.

Fifteen years ago Mr. Scott emigrated from Chicago to Erie. Borrowing \$50 on an insurance policy decided there was a field for taxi service here, and with the assistance of some friends managed to get a carriage in operation and added more equipment when he saw his way clear.

Early in 1912 he saw the coach business of this city "folding their tents like the Arabs and as silently stealing away." His best customers purchased automobiles for private use and fully realized that he was losing out with carriages and must make a change. Selling enough horses to buy a truck, Mr. Scott decided to change from the taxi work into hauling and draying line, as a field for motor truck, hauling material for the large manufacturing plants in this section, loomed in sight.

In consulting his friends as to his intended venture tells, that some said the motor truck was not a success, others said they were too expensive, while others said they were merely a novelty and it soon would wear off. But Scott knew better and soon proved it when he contracted with the Erie National Malleable Casting Company to furnish sand for cores and foundry purposes. This truck operated twenty-four hours a day for a period of two weeks without a hitch. Mr. Scott used two drivers, each working twelve hours a day.

It was from this beginning that he developed his business for other hauling which made it possible for him to increase his equipment to nine large trucks. The present fleet is made up of four power hoists and five flat bodies. Five Kelly-Springfields and four Macks. The Kellys as follows: two 3½, two 5½ and one 7½. The Macks: two 3½ and two 5½.

Two Macks, a 3½ and 5½, are now running daily between Erie and Cleveland and stopping en-route at North Girard, East Springfield, West Springfield, Conneaut, Ashtabula, Geneva, Madison, Painesville and Collinwood, leaving Erie at 8.00 a. m., and returning at 4.30 p. m. the following evening, making one way each day. The goods carried are delivered to the consignee at Cleveland and other points direct. The day that I called on Mr. Scott the trucks left on schedule time with loads of castings from the Erie Malleable Casting Co., consigned to the White Motor Co., the Torbensen Axle Co., and the Cleveland Tractor Co., all of Cleveland, and returning from Cleveland will bring back freight for Erie manufacturers.

While at this time the return loads have only utilized about 40 to 50 per

cent of the capacity of the trucks, it is remarkably high when it is to be considered that the majority of transportation companies began operation at 33 1-3 per cent and less.

The establishment of another branch between Erie and Buffalo is now being considered by the company, as the business of the firm is increasing steadily.

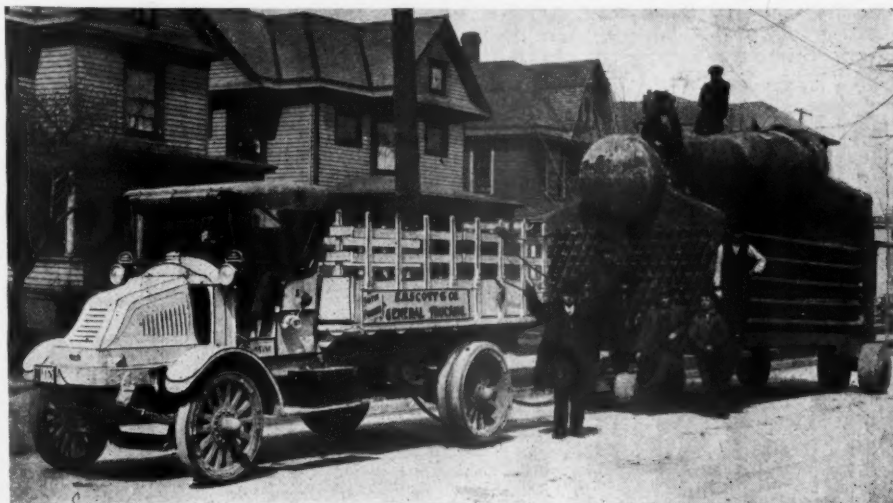


One of a Fleet of Nine Trucks Now in the Service of the E. H. Scott Company

The same service will prevail if the new route is established. Manufacturers will save considerable time by this method. When shipment is made by freight or express, consignees are balked by railroad congestions or car shortage which result in delays. By using motor truck service they have the goods delivered directly to their doors. Delays very often mean total loss to consignor and consignee.

Another feature of the motor truck freight business is that if a large shipment is made for delivery other than Cleveland, it can be carried direct to its point and delivered just as easy as though it was delivered at the home terminal, with only the additional labor and the establishing of the extra freight haulage charge to cover the increased run.

A five and one-half-ton Kelly is used exclusively for long distance work which is done on special contracts according to the amount of goods to be handled and the distance to be covered. Two Kellys and two Macks made a record during the



The Three and a Half Ton Kelly With Which E. H. Scott Started His Trucking Business

coldest weather last winter, when they operated for a period of thirty days continually of twenty-four hours each for the Erie Forge and Steel Company, which concern was building a new plant.

The housing question is one of considerable importance in all cities that are engaged in making war supplies for the Government, and not until Uncle Sam took hold of this matter had much been accomplished in this city to relieve the

fully equipped to handle any emergency or repair.

"Two factors must be borne in mind if you would successfully operate motor trucks," says E. H. Scott. "You must carry a full load both ways and you must keep the wheels continually in motion. No one knows how long the war is going to last. Everybody knows that the war is making opportunities every day in every line of business and the man who takes advantage of these opportunities,

to the Pennsylvania Railroad Co., at Alliance, June 14. As it had not even been started on its eighteen-mile journey to Canton one week later, B. F. Braucher, of the Timken traffic department, went to Alliance to investigate.

He found it in a car, but with little prospect of starting for Canton. So he called the Rush Delivery Company, of Canton, on the wire, explained the situation, and in just fifty-five minutes one of this concern's big Packard trucks rolled up to the freight platform at the Alliance station.

The big grinder was loaded on a truck, and was shifted onto the motor truck in short order. And just four hours from the time Mr. Braucher telephoned the Rush Delivery Co., the grinding machine was at the Timken plant. This time included the 18-mile trip from Canton to Alliance and the 21-mile trip back to the Timken plant.

In a subsequent letter to the Rush Company, Mr. Braucher in analyzing the situation, stated that had the grinder been started by rail the day he went to Canton, it would have taken four days to get the machine to their plant by rail under present conditions. He also took occasion to commend the Rush Company on similar quick jobs done for the Timken organization, the latter company sending out the S. O. S. for truck service whenever it is in a hurry for machine or material delivery.

An idea of what motor trucks are doing in "strategic" centers like Canton is shown by the record of the Rush Delivery Company for a certain day in June, when its cars made trips to Alliance, Massillon, Butler, Pa., Cleveland, Akron and two trucks to Dayton, O. And in January the company made one delivery of a heavy casting to a big Pennsylvania plant 140 miles away in less than 24 hours from the time the order was received.

Big manufacturing plants would indeed find it hard sledding these days if they could not rely on motor trucks for their hurry up orders.



Hauling Slag
for the State
Highway

situation. The Government orders for 1000 homes to be built immediately has placed additional work at the option of this company. Mr. Scott was called upon for a contract, and put three of his power hoist trucks to hauling sand from the Erie Sand Company's dock to the new locations for these homes. One slogan of the company is "Lake Sand and Gravel at a Minute's Notice." Two more of his trucks are in the employ of the state hauling crushed slag for the improvement of the highway east from Erie.

"A few years ago," says Mr. Scott, "I got to studying the haulage situation and decided that the day of the truck had arrived, and the way my business has increased since I got my trucks is simply wonderful."

At present the personnel of the truck fleet consists of nine drivers. Mechanical means of loading are installed at both the sand, gravel and also at the slag dock so that the least possible time is consumed in loading, and the assistance of the power hoists make it possible for the driver to handle his truck alone in an efficient manner. Only competent and experienced drivers are hired. He has made a firm rule that no driver who uses alcoholic liquors need seek employment. His drivers are paid a straight salary of \$30 a week, which is \$5 to \$10 above the amount paid by the average truck firms. Mr. Scott believes it wise that the drivers are well paid as it brings a higher type of efficient men. Several of his drivers have been employed by him seven years.

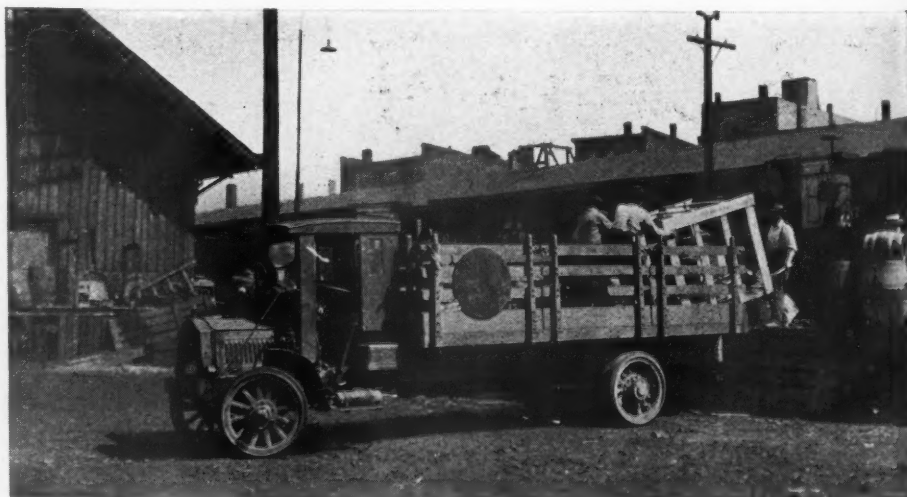
His garage is 40 by 100 ft. The machine and repair shop is 40 by 40 ft. The garage proper is 40 by 60 ft. The office adjoins this spacious garage which is

yet builds for the future, is the man to whom success is assured."

Four Days by Railway, Four Hours by Motor Truck

It is doubtful if a better example of motor truck service over railway methods in congested regions could be given than the following, which is a typical case in the northern Ohio manufacturing districts. It is a case of four days by railway or four hours by motor truck. Needless to say, the motor truck took the job.

The Woods Engineering Company, Alliance, O., manufactures grinding machines much used by automobile parts manufacturers. One of these machines, built to the order of the Timken Roller Bearing Co., Canton, O., was delivered



Rush Delivery Company Truck Makes a Four-Hour Delivery to Timken Company, as a Substitute for Four-Day Railway Service

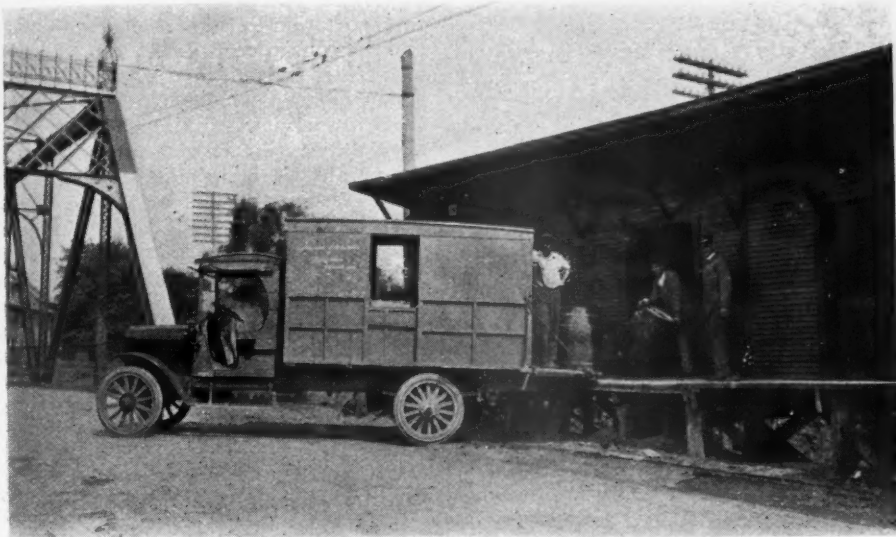
Trucks Used as Feeders for Electric Interurban Line

TRANSPORTATION experts have for some time predicted the eventual employment of the motor truck as a feeder for electric interurban lines. That they will eventually be used in large numbers for this work is foreshadowed by the experience of the Columbus, New Albany & Johnstown Electric Railway, which recently put on two motor trucks for this

time to reach the afternoon outgoing express car, which transfers its express for New Albany and Johnstown to the waiting motor trucks about three o'clock, at Gahanna. The motor trucks land all this merchandise at its destination before five o'clock in the afternoon of the same day as ordered, which is about two days quicker service than merchants could get by former railroad methods.

The management of the electric line is enthusiastic in commendation of the work of the motor trucks and already is planning an extension of the motor truck service to Alexandria, Croton and other small towns within a convenient radius of the Gahanna terminal.

It is more than likely that the success of this experiment will result in widespread adoption of motor truck feeders to present electric line systems. No extension of electric lines is possible for a period of several years, from present indications, nor has there been any extension for several years past, owing to financial difficulties. The necessity for increased transportation facilities has become more and more pressing in many communities, and it seems certain that once



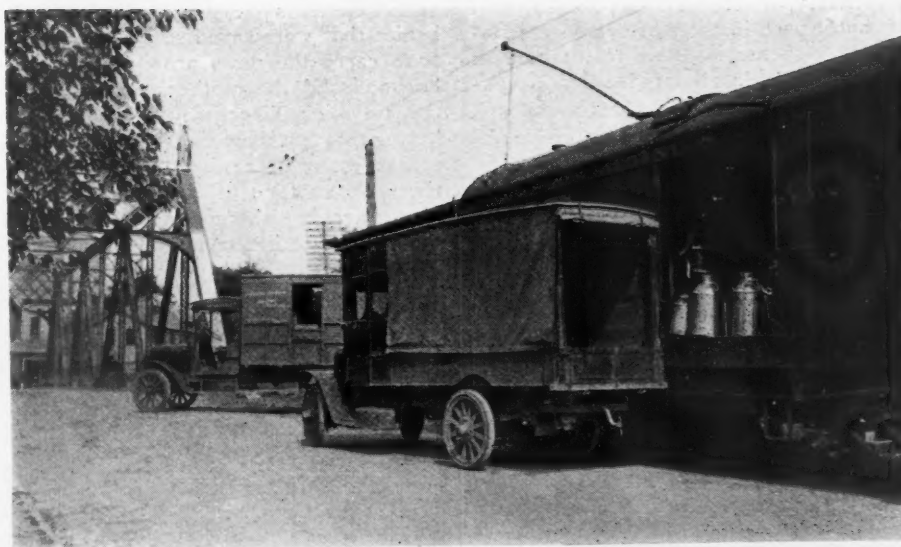
No Longer Rivals but Partners, Working Together in Closest Co-operation

work, and which has, by their use, more than doubled its freight and express business.

This interurban line runs from Columbus, O., to Gahanna, a distance of about ten miles. It passes through thickly settled country most of the way and has done a good freight business ever since it started running.

Beyond its Gahanna terminal are several villages, however, which have depended on very poor railway service in the past for all freight and express matter, and it is to reach these villages that the motor trucks were employed. The Suburban Transfer Line, of Columbus, already in the field with two rural motor express lines, was given the contract to handle the motor truck end of the business, and two Acme trucks of one- and two-ton capacity respectively, were purchased and placed in service. One of these was fitted with a freight body, the other with a combination freight and passenger body.

Johnstown and New Albany are the towns now reached by the motor express service, Johnstown, the farthest from the electric line terminal, being fifteen miles away. The motor trucks make a morning trip to Gahanna, carrying freight and passengers to the electric line, and usually several orders that will, upon arrival in Columbus, be telephoned to the proper concerns. The result is that shipments are made at Columbus in



The motor trucks have already developed some business from farmers along the route, and this is bound to increase as the convenience of the service is demonstrated to them. They are insured afternoon delivery of any order they place with the driver on the inbound morning trip, or that they may place with Columbus merchants by telephone. Much milk is being sent into Columbus creameries and ice cream factories, an outlet for dairy products that has not hitherto been conveniently available.

Most of the Milk Along the Route is Brought in by the Combined Freight and Passenger Truck

the motor truck becomes established as a direct auxiliary to electric service, the growth of the auxiliary will be fast and widespread.

The experiment with the Columbus line will be watched with more than ordinary interest.

"Save the Babies" With a Motor Truck at Cleveland

They're using a G M C motor truck at Cleveland to "save the babies," carrying the campaign right to the very doors of the tenements rather than trying to get the mothers to come to special meetings, clinics, etc., in the downtown section of the city.

The Cleveland Children's Year Committee, co-operating with the United States Children's Bureau and the Women's Committee of the Council of

on the roof is used after dark to teach, by means of pictures, the things that are necessary to conserving babies' health.

The truck also has two folding tents, one for either side of the van, and a trained nurse and sanitary policeman accompany the outfit as it makes its rounds. A member of the War Service organization of the Red Cross drives the truck.

The various playgrounds are used as central working points for the car, and



The Interior of the Traveling Dispensary is Immaculate White, a Trained Nurse Goes With It

National Defense, have had built on a G M C ambulance chassis a traveling Baby Dispensary, which contains practically all the outfit used in the more elaborate stationary dispensaries now maintained at several points in all large cities in connection with this work.

The body of the truck has inside dimensions of 6 ft. 6 in. in height, 6 ft. width and it is 9 ft. long. Gas and electric lights are provided, a baby bath, scales, etc., and a moving picture outfit

there is no difficulty in getting the mothers interested once the car is parked and the tents put up. Hundreds of the babies that were saved several years ago soon carry the news around the neighborhood and the mothers soon flock to the traveling dispensary and put their babies through the various tests required.

Like many other branches of war activity, the motor truck has made it possible to accomplish more in shorter time than by any other means.

Association Will Sell Transportation at Fixed Rates

An association whose membership will consist of individuals and companies having either motor truck or horse drawn vehicles for hire has been formed in Detroit. Private truck owners whose vehicles are idle for part of their time are also eligible for membership. John F. Myers, formerly of the firm of Houghton & Myers, Inc., distributors of Stegeman trucks, is at the head of the organization, and already more than thirty applications for membership have been received. This association will take over the work of the Detroit Return Loads Bureau, and hopes to succeed in selling highway transportation to the shipper of goods and the consignee at fixed rates. A corps of highly trained investigators is now engaged in a study of transportation costs with a view to fixing definitely rates for highway haulage between Detroit and points within a radius of 180 miles.

The association will be known as the Detroit Transportation Association and will be financed by its members, each member paying a certain amount monthly, the sum being determined by the number of members in the association, the idea being to set the dues at an amount which will just cover operating expenses without allowing for any sinking fund.

Bound Brook Oil-less Bearing Company Insures Employees

The Bound Brook Oil-less Bearing Co., Bound Brook, N. J., has completed arrangements for insuring every employee who has been in the service of the company for three months to the amount of \$500, increasing with the length of service, payable at his death to whomever he may direct the policy to be issued. The entire expense of the policy is paid by the company.



The Arrival of the Traveling Dispensary is a Signal for the Gathering of the Youthful Clans



It is Born in a Boy to Want to Peep Under a Tent, Whether It be Circus or of Other Variety

Some More Pertinent Advice to the Young Truck Dealer

Veteran Dealer Tells of His Experiences and Gives Timely Advice to Those Who Are Embarking in the Truck-Selling Business. Why Some Dealers Fail

By C. P. SHATTUCK

WHY is it that there is a certain percentage of dealers who achieve success, make money selling trucks and others fail to make even a living? How is it that dealers selling in similar territory, under practically the same conditions, obtain widely varying results financially? The truck is not always the determining factor, for it will be found that dealer Smith is waxing prosperous handling the Blank truck while dealer Brown is not paying expenses with the same make and with similar possibilities.

There are those who will hold that it is largely the individual who is responsible for success or failure but there are many who maintain that the methods employed, sales, credits, service, policies, etc., are the crux of the problem, and among those who prove this contention through practical experience and results is F. C. Lindoefer, who is the head of the Bessemer Truck Sales Co., of Buffalo, N. Y.

Mr. Lindoefer has made a success selling trucks and his methods are based on years of experience in the automobile industry, both passenger and commercial cars, and through personal contact with dealers all over the country as far back as 1902. He took over the agency for the Bessemer line of trucks for Buffalo and vicinity in April, 1915, and with his partner, now retired, had less than \$1000 to begin to exploit the Bessemer trucks which were not known in Buffalo; in fact, there was but one in service at that time. The beginning was a small store. Today the Bessemer trucks are housed in a spacious, thoroughly modern building on Main street, automobile row, and the company did a gross business of \$137,000 in 1917, and an estimate based on sales up to the present time indicates that the \$200,000 mark will be passed in 1918.

Mr. Lindoefer says that it is not always the man or firm with a lot of money in back of him or them who succeeds in selling trucks and points to his small capital in starting as an example. He further states that he never asked a bank for a loan to tide him over, for he stinted himself rather than "afford" certain pleasures and luxuries and his obligations always came first. He also sold accessories as a side issue. These were also high grade and not stocked because of price.

Mr. Lindoefer ascribes his success to the following rules or policies:

Establish a line of good credit with those you do business with and meet every obligation promptly.

Never promise the prospect or customer more than can be absolutely backed up by yourself or the factory.

Thoroughly understand the policies of the manufacturer of the truck represented.

Whenever a truck is taken in as part payment (trade in), place it in first class condition so purchaser will be satisfied.

Keep an accurate record of costs and prepare a balance sheet the first of each month so that profits will be known, not guessed at.

Close your place of business at 6 at night and on Sundays, as there are six days to labor and the seventh to rest.

Depend upon yourself to make a success selling trucks, not the factory.

Increase your interest in the prospect after he is sold. Concede the customer is always right.

If a customer asks for repeated instructions as to a certain part and is dense, do not assume an air of superiority or allow your employees to do so. Insist on courtesy to customers under ALL conditions.

First Establish a Good Line of Credit

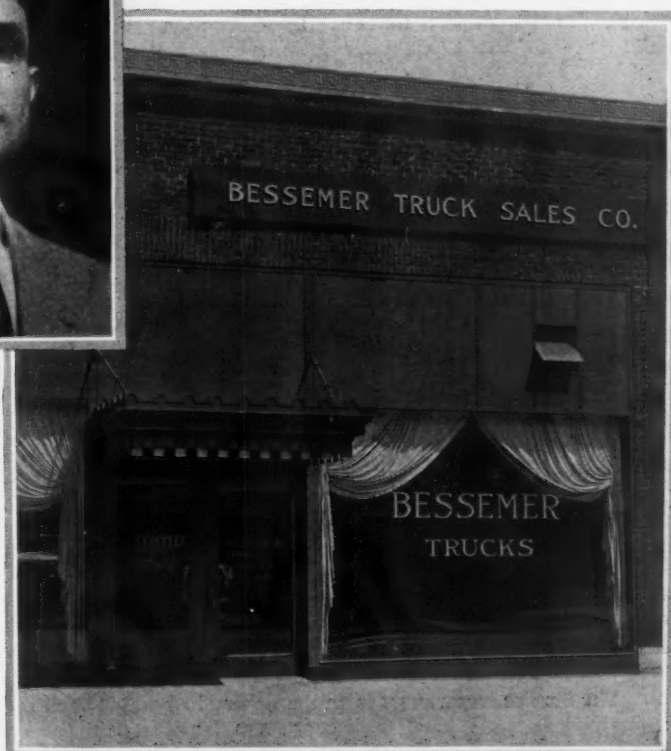
"It is important to success," said Mr. Lindoefer, "and especially for the dealer who is just starting, to establish a line of good credit first at his bank, and then with the merchant with whom he does business, and to meet his obligations promptly so that everyone he comes in contact with will be anxious to do business with him. The same applies to selling, not to promise more than what can be absolutely backed up by both the dealer and the factory. A dealer handling trucks or passenger cars should thoroughly understand the policy of the company whose lines he represents, and to know just how far he can go or make good so that when the time comes, when the customer requires service or replacement of parts, it can be done in a pleasant manner and satisfactory to all parties concerned. New or young dealers should avoid making any promise they cannot fulfill and if you feel your customer slipping, if your selling talk does not get by, do not forget yourself and make some foolish little promise that you may forget but the customer won't. It may react like a boomerang if you don't make good. And a customer loses confidence in a dealer when the latter fails to "remember" some promise.



F. C. Lindoefer

Who believes success is not measured by large initial capital.

Entrance to salesroom of Bessemer Truck Sales Company, which grew from an investment of \$1,000 to a gross business of \$137,000 in two years.



Know the Factory Policy Thoroughly

"Become familiar with the policy of the factory. Find out exactly what the factory will do and can do. Spend some time learning what you may expect and then you will know what you can do and do it. Don't expect the factory to sell your trucks. They make them and advertise them, but the dealer must sell them."

In speaking of cities in which truck manufacturers are located and where the makers are more or less in the habit of selling direct, and many companies are anxious to get the business to the extent of cutting the price, Mr. Lindoefer says this should not in any way discourage the dealer, as a factory or a dealer cannot do this and give the customer proper service and remain in business for any great length of time.

As to "trade in," the Bessemer representative advises the new dealer or any other for that matter, to be very careful unless he knows the truck very thoroughly, and knows just what he can get out of it, as it will be disastrous for him every time. The best policy is for him to try to sell the car for the customer and allow him whatever he can obtain for same to apply on the new truck. Whenever a truck is taken in trade for Bessemers it is always placed in first class condition so that the purchaser will be satisfied. "Taking in old cars and peddling them off to someone with whom they usually work unsatisfactorily, does not make a satisfied customer or promote repeat orders," said Mr. Lindoefer.

He has decided views as to cleanliness of all the departments and the hours of labor. "You show me a dealer whose desk is cluttered with papers and odds and ends, and I will show you a man who does business in the same way. You will find his service department run on the same plan with men wasting time looking for something that should be readily accessible. Close your place of

business at 6 at night and keep it closed on Sundays and holidays. Why should a truck dealer work seven days and seven nights the week any more than any other legitimate business? I never permit overtime or Sunday work except in emergencies and these are very rare when the customer is given the right kind of service. My customers know my attitude on Sunday work and respect it.

Cut Out Unnecessary Overhead Expenses

Mr. Lindoefer believes that too many young dealers make the mistake of spending too much on elaborate and high priced salesrooms, offices, etc., and endeavoring to swing a large corps of ex-

tical and points to the gross business he transacts with an office force of one girl. But Mr. Lindoefer believes in good wages, high grade employees and confidence in them. He also practices the same courtesy toward them as customers, setting an example. His force, in addition to the girls, consists of a service manager, three mechanics and an errand boy.

No Guesswork as to What It Costs to do Business

"One of the biggest errors made by the new dealer and by many experienced agents is guessing from time to time what they are making. The average dealer labors under the impression he is



A Section of One of the Stock and Display Rooms

pensive office employees, etc., just because some other truck agent does likewise. He advises cutting the overhead expense to the bone and says it is prac-

making money," said Mr. Lindoefer. "There is only one way to be positive and that is on the first day of each month to prepare a balance sheet showing the costs for the month. If this was done by more dealers I am sure that they would be more conservative in keeping down their operating expenses.

"Patience should be practiced not only by the dealer but by his employees when a customer asks for instruction or explanation as to the truck or the operation of any of its components. Do not become peeved if a customer asks you several times how to put gasoline in the tank. Do not assume that air of superior wisdom when explaining any feature or part, but make it appear that you are interested in your explanation. It should be borne in mind that many new customers are not familiar with the underlying principles of trucks. It is up to the dealer to educate him and the better the teaching the more satisfactory will be the service rendered by the truck and dealer. Keep your customers' trucks running. They will advertise you at no expense."

"I assume that the customer is always right, which we all know is not true in



The Service Department is on the Upper Floor and is Well-Lighted to Obtain Efficiency From the Workmen

every case, but if the customer is not satisfied how can you expect him to be a booster for you or your truck? One must educate the customer to the fact that he is getting a square deal and the sooner this policy is put into practice the quicker truck selling will be placed on a sound business basis. Suppose you do make an allowance costing a few dollars. It is a winning policy in the long run and cheap advertising."

The Bessemer Truck Sales Company does no demonstrating and has not since organized, believing that it is the source of an unnecessary expense to a dealer, turning a truck into a second hand car. The firm believes that the practicability of the truck has been sufficiently well established to forego demonstrations.

An unusual feature for a large concern is the open door policy of the parts or stock room. The parts, material, etc., are accessible to any of the employees and the system provides only for an employee marking on a tag or card in the part bin the number of parts taken. New parts added are marked on the tag, a

form of debit and credit arrangement. Mr. Lindoefer states that aside from small materials, such as nuts or bolts, the stock on hand and charged out balances.

Stocking and selling parts is not at a loss as six per cent is charged of the list price to the selling price or cost to customer. This is not done to increase profits but to avoid charging the cost of wiring for a part, express charges, etc., items sometimes annoying to some customers when they peruse the bill. The service station system is simple. No work is attempted without an order and specification of work must be made by customer. The keeping track of the labor, parts, etc., follows conventional practice.

One of the interesting features of the sales made by Mr. Lindoefer, who says he never follows up a prospect because if the prospect is interested he is sold, is the large sales made during the past two years to vegetable and fruit farmers, particularly the latter. Over 50 per cent of the trucks sold this year have been made to this class, and covering a radius of 50 miles from Buffalo.

of road in the same length of time. Just how the trucks stand up no one seems to be willing or able to say. They just hang together and "keep a-plugging," that's all.

But when you've mentioned the road in that section you have not told the whole story by any means. They have plenty of heat down there, too. They say it goes up to 125 in the shade—with no shade. And while men labor in that terrific heat of the day and the chill of the night the trucks and trailers roll steadily back and forth between the mine and the freight cars in Los Vegas.

The manganese, oily and almost as black as coal, attracts the heat in a remarkable manner, and by the time the trucks reach the railroad siding in town after an almost uninterrupted series of bumps, the vehicles and their loads are exceedingly hot to the touch. Last winter water in pails that were placed on gravel was covered with a coating of ice. Water in pails stood on manganese were tepid—that's how this mineral attracts heat.

At the present time the digging of the manganese is confined to quarrying. The high grade material only is broken into lumps after a blast and carried to the cars, which run along a small track, to the chutes, where the trucks are loaded. The production at night is twice what it is during the day, this being on account of the elimination of the terrific heat.

Motor Trucks Used to Speed up Manganese Output

In the speeding up of the shipments of manganese, a metal that is very much needed by the government at this time, the motor truck scores again, and the chances are that in no other line is it doing better work and more faithful service than in this particular line. To say that the government is badly in need of this metal right now is putting it mildly. The demand has grown several hundred per cent during the past year and as the mines have not increased in number, it naturally follows that those that are now in operation must increase their output and must do that without any great loss of time.

This is what the owners of one of the largest deposits of this mineral in this country were told not so very long ago.

The order was "Increase output at least 100 per cent—and do it NOW." That is why there is so much hurry and bustle around this particular manganese mine, which is located about seventeen miles from Los Vegas, Nevada, and that is why three 8 hour shifts of men keep the mine going continuously.

The most remarkable thing connected with this work is the wonderful performance of the trucks that are being used in the work. The only connection between the mine and the nearest town is a dirt and sand road which, in the very best season of the year, is one continuous series of chuck-holes. More than 200 tons of this manganese is being mined every twenty-four hours and all of this is being hauled over this seventeen miles

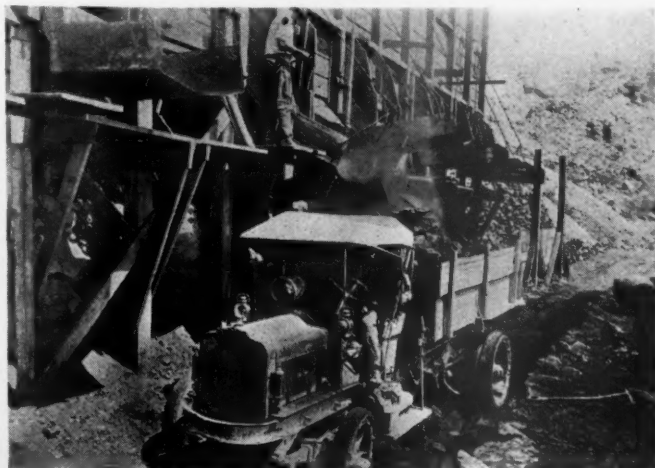
Splitdorf Will Make Bosch Magnetos

The Splitdorf Electrical Co., Newark, N. J., has been licensed by the Federal Trade Commission to use certain patents hitherto exclusively used in this country by the Bosch Magneto Co. The patents stand in the name of Robert Bosch, of Stuttgart, Germany, in the United States Patent Office. The Bosch company, in opposing the grant of licenses to Splitdorf, presented evidence to show that Robert Bosch in 1913 had agreed to sell the patents to the Bosch Magneto Co. for \$275,000. After investigation by the Federal Trade Commission it appeared, however, that Robert Bosch still holds the legal title to the patents. As enemy-owned they are subject to licensing to American firms.

The Splitdorf company is manufacturing magnetos for Army airplanes and has been directed by the War Department to embody the Bosch devices.

The licenses are non-exclusive and are to run during the life of the patents.

Larrabee-Deyo Motor Truck Co., Binghamton, N. Y., is adding a new building to its present plant. It will be of fire-proof construction, 59 by 102 ft., and will give the company an additional 11,000 sq. ft. of floor space. A portion of the second floor of this building will be given over to executive offices. The company is also contemplating the enlargement of its display room.



One of the Fleet of Five-Ton Trucks That Hauls Manganese.

Street Oiling and Flushing by Motor Trucks

By C. P. SHATTUCK

BINGHAMTON, N. Y., is one of the several cities in the state which has proven that motor propelled and operated street flushing apparatus is saving the municipality a large amount of money each year to say nothing of eliminating the unsanitary horse, street sweeping brooms, sprinkling carts, etc.

Through the recommendation of J. A. Giles, commissioner of the department of public works, the city purchased in March, 1917, a 5-ton White chassis equipped with what is known as the No. 2 power flusher, sprinkler and road oiler. This equipment is utilized for flushing the streets with water and oiling the dirt and macadam roads, which is done after the property holders on the street petition for same and a hearing is held.

When this article was written the equipment was being utilized for oiling in the morning and part of the afternoon, and the remainder of the time for street flushing. Formerly a contract was made with the Standard Oil Company to oil the roads but with the purchase of the truck the city found, after the operators became familiar with oiling apparatus, that it could operate the unit at a cost of \$25 a day, this figure including all practical charges against the truck. The cost of oiling is 5 cents a running foot or \$2.50 for a 50-foot front. The oil now costs 10 cents a gallon and about one-third of a gallon is used, on the average, to a square yard of surface oiled. It should be borne in mind that the price of oil has advanced several times in the past two years which explains the cost per square yard. Commissioner Giles states that even with the high cost of oil that the expense to the property holder is considerably less than it would be under the former conditions.

The truck can oil 4000 square yards in the average day's work where the hauls from the source of oil supply are long. Its maximum day's work, 8 hours, under favorable conditions is 8000 yards. Two men constitute the crew, one driving the truck and the other controlling the pressure of the oil which is varied from 45 to 120 lb. to meet the varying supply in the tank, which holds 933 gallons. All oil is well filtered, it passing through three separate screens. An interesting feature of the oiling is the telescoping measuring rod invented by Commissioner Giles. Inasmuch as the capacity of the tank is known, measuring the supply in feet and inches enables the computation of the amount of oil used per running foot of surface oiled. The maximum surface oiled is 9 ft. wide. Control of the oil is by the operator at the right hand side and at the rear of the tank. A heater of the drum type, enclosed in a housing, is located at the rear. As to the work of the

oiler it can be said that it distributes the oil evenly and economically, there being little if any waste. There is a freedom from the usual puddles and practically the last gallons are used before the oil nozzles "blow."

A rotary displacement pump having a discharge capacity of 400 gallons per minute and 150 lb. pressure, forces the fluid through nozzles. There are two sets of flushing nozzles, one set in front of each front wheel and one on each side of the chassis. There is also a vertical nozzle connected with the wheel nozzle. These flushing nozzles deliver the water to the surface to be flushed at an angle of not less than 20 nor more than 26 degrees and at a maximum height of 20 in. from the surface. Control is by the driver of the apparatus.

Accompanying tables show the average performance of the street flusher unit and indicate the superiority and

economy of the motor propelled apparatus over former methods. The figures do not represent the square yard involved in the street cleaning work of the entire city nor were they selected to favor the truck. If anything, the horse drawn equipment was favored, as the figures dealing with the work of horses were held to be exceptionally good.

As may be noted, the truck practically accomplished as much in three hours as did the horse drawn flusher in 7½, and in fairness to the truck it should be stated that the territory covered by the horses included districts more readily cleaned than others. It may be noted that the truck is more economical of water, and while the cost is but 6 cents the 1000 gallons, the time and labor required to renew the supply is an item in these days when the cost of labor is steadily mounting. Further comparisons, those dealing with the square yards

Street Width	Pavement	Average Water per Square Yard.		Water Gals.	Water Sq. Yd.
		Sq. Yds.	Linear ft.		
36 ft., 30 ft.	Brick	6,905	1,540	3,000	.435
30 ft.	Brick		7,101	20,000	.720
30 ft.	Concrete	28,016			
30 ft.	Bith.	5,956	1,916	4,000	.670

Pavement	Total Yardage of Paved Surface Flushed.		Time Hours	Water Gals.
	Sq. Yds.	Feet Total Linear		
Brick, Concrete, Bith.	40,877	10,557	3	27,000

Operating and Maintenance Costs.	
Water 6 cents per 1,000 gallons.	Repairs, \$250 the year.
Fuel, oil, grease, depreciation, tires, 33 cents per mll.	Interest, 5 per cent.
Operators' wages, 37½ cents per hour.	Insurance, fire, liability, etc., \$70 annually.

Unit Cost of Flushing.	
27,000 gallons water @ 6 cents the gallon.....	\$1.62
Operating truck 3.9 miles @ 33 cents the mile	1.28
Labor, cost, 2 men 3 hours @ 37½ cents the hour	2.25
Cost truck, \$7,000, 5% annually, 95 cents the day .....	.35
Repairs, \$250 the year (313 days) 79 cents the day .....	.30
Insurance, \$70 the year (365 days) 19 cents the day .....	.07
Total cost	\$5.87
Cost per 1,000 square yards .....	.143
Average gallons water per square yard.....	.67

Horse Drawn Flusher (Morning).				
Square Yards	Time	Linear Feet	Water, Gals.	Water, Sq. Yd.
			13,000	1.19
			1,300	.78
			1,300	1.30
28,950	4	2,988	1,300	1.39
Horse Drawn Flusher (Afternoon).				
			4,550	.818
			6,500	1.440
			4,550	1.820
			650	.39
16,264	3½	3,141	2,300	.63
Totals 45,214	7½	6,129	35,450	

flushed, water used, etc., will reveal facts that should be of interest to every municipality relying upon the horse drawn equipment.

The street flusher is in service the conventional period, from April 1 to November 1, inclusive, but in addition the unit is employed to assist the garbage units, which were described in the June issue of

the streets. Since taking over the department, Commissioner Giles has kept cost figures, but these relate to the truck only and are given in an accompanying table. The figures show that the cost per square yard is .143 cents and some idea of the saving effected with the truck may be obtained from the statement that three horse drawn brooms, one sprinkling



Combination Road Oiler and Flushers in Service in Binghamton, N. Y., Which is Proving a Profitable Investment

the "Commercial Car Journal," and for removing snow. The tank body is displaced when used for garbage and snow removal and without interfering with the pump, pipes, etc.

No figures are obtainable as to the costs of the horse drawn equipment, as Commissioner Giles stated that none were kept which would give any satisfactory idea as to the costs of cleaning

cart and two pick up teams with crews were utilized in the district previously referred to.

Commissioner Giles states that considerably cleaner streets have resulted from the use of the motor truck and that there is no fine dust as with the horse drawn equipment. He estimates that the truck is 75 per cent more efficient, financially and in time saved.

Each type of trailer—2-wheel and 4-wheel—has its definite uses and application, but the 2-wheel trailer meets much the greater number of hauling conditions. The turning radius of the 6-wheel unit—that is, the truck and semi-trailer—is no greater than that of the tractor-truck itself, and it can be handled in practically the same space. The backing is accomplished in exactly the same manner as with a horse and wagon.

Now the question of economy is one which is uppermost in every one's mind at the present time, and I will deal with the trailer from the standpoint of economy and saving.

The first cost of the truck and semi-trailer effects an average saving of 35 per cent in comparison with the cost of a single standard truck of the same carrying capacity as the truck and semi-trailer. Actual experience has shown that the use of the proper trailer with the truck adds less than 15 per cent to the maintenance of the truck alone. This means a continual saving of 10 to 20 per cent in comparison with the single truck of the same capacity as the 6-wheel unit.

Then we have the increased value which you are able to obtain from the truck when it is working in connection with a semi-trailer. This increased hauling capacity should, of course, be counted as an actual saving. For instance, there are in the country at the present time approximately 435,000 trucks in use with an average capacity of $2\frac{1}{2}$ tons each. If each of these trucks was connected with the semi-trailer the increased hauling capacity would be equivalent to 5000 trains of 55 cars each.

The trailer can be used in relays, which means a still further increase in the hauling efficiency of the truck because, while one trailer is being loaded at one end of the trip, another trailer will be discharging its load at the other end, and the truck itself will be either delivering a loaded trailer or returning with an empty trailer after re-loading. This means maximum work being obtained from the motor truck at a greatly accelerated speed in hauling, which, of course, in these times, means making the truck a much more profitable investment. Whenever the hauling proposition is one of loading at one common point and delivering at another, this relay system will prove of immense value. If more than one loading station is used, additional trailers can be operated to advantage. Two typical examples would be lumber hauling from the woods to the mill and parcel delivery from department store warehouses to distributing stations. These, of course, are but two typical instances where valuable results may be secured in the use of the trailers in relays. Wherever the load carried is made part of a large number of parts, "a multiple piece load," whenever for any reason loading or unloading consumes a great deal of time or whenever the whole load goes to one destination, hauling costs will be cut to the lowest possible minimum by the use of trailers in relay.

The Trailer as a Transportation Aid

By L. E. McGlaughlin, Sales Manager, King Trailer Company
Ann Arbor, Michigan

THE present unusual transportation demand being made on the railroads—not only on account of the immense number of troops being moved, but the quantities of material and supplies which also have to be carried—is well known. In addition to the troop and Army supply overload on the railroads, we have also the immense amount of war material and supplies which are being rushed to tide water to make up shipments to the Allies.

Every war in the history of the world has brought about an unsettlement of ordinary conditions to meet many devices and appliances have been developed and brought into general use in a manner which did not seem possible or practical in the times of peace. The most important advantage we will gain from the chaotic conditions of railroad transportation caused by the present war is the development to its full efficiency and general employment of the commercial car as a power unit for short hauls.

I speak of the commercial car as a power unit, advisedly. The motor truck on a short haul represents to this form of transportation just what a locomotive represents to the railroad. It is as fundamental as the force of gravity—"that

it is easier to pull than to carry." Evidence is to be secured from sources farther back than the building of the Egyptian pyramids. The materials of which they are built were "trailed" rather than carried. The steam engine and its train, the tug boat and its barges are modern examples of the trailer principles. And now the motor truck has shown itself successful and decidedly efficient as a tractor.

This all leads to the conclusion that to obtain the greatest benefit from the motor truck we must use it in connection with the trailer, as the trailer enables us to get maximum performance as a haulage proposition out of the motor truck. Investigation and actual performance has proven that the actual truck supplies drawbar pull sufficient to haul about three times as much as it can carry. Thus, a truck rated at 1-ton carrying capacity will haul a semi or pole trailer with three times this load, or three tons. And the load on the trailer will be taken care of under practically all of the conditions under which the truck alone could carry only one ton.

The average 2-ton truck with an appropriate trailer will handle a 6-ton load under normal conditions, and a 3-ton truck a 9-ton load.

Giving the Truck Owner a Different Kind of Service

By GEORGE W. GRUPP

THERE is something which every dealer owes to every man he sells a truck besides the mere delivery of the truck. I do not refer to truck service such as the replacement of parts, etc. That's one kind of service, but an equally important one is to make suggestions to the owner how he can save money and time by using different methods of routing, etc., and by installing mechanical loading and unloading devices.

From this no dealer should take it that he is being asked to become a construction engineer. No, not at all! But he certainly does owe it to the man to whom he sold a truck to make suggestions on how he might get more out of his truck.

But the average dealer will say to all this that he has no time to give such advice to his customers. Then take time. The dealer who is going to make the greatest headway in this community is the one who is going to take time.

The dealer who says he has no time for such things is intensely shortsighted. In the first place he is forgetting that by making such suggestions he is placing and selling his truck to best advantage to get profitable results.

He fails to recognize that it is the best kind of advertising for himself. Such service will not go unnoticed in a community, and his methods of handling owners will be the talk of the town. The others will be compelled to follow suit if they want to get trade.

The pessimistic dealer might protest by saying that after he did all the pioneering the others will give similar service and there will be no advantage gained. This is a fallacy. The others will fall in line, but he will be the leader and the leader he

will remain if he has a real backbone and is ever watchful in recognizing business opportunities.

But some will say that they already do this, that they give this kind of service, that they first make a very careful study of the prospect's business before they sell him a truck, and then tell him how to use it to best advantage. Such service is commendable and is the only and proper condition under which the selling of motor trucks should be made.

Without going into detail, every dealer should suggest how such devices as bucket carriers, elevators, hoists, pneumatic suction conveyors, cranes, apron conveyors, portable pilers, electric industrial trucks, spiral chutes, telferages, nest and demountable bodies, trailers, escalators for bulky freight, roller gravity conveyors, power winches, moving platforms, ramps, etc., may be used to advantage with his trucks.

Besides showing them how to keep track of cost and performance of trucks, which is a general practice amongst the dealers, they should spend a few profitable minutes instructing their purchasers how to figure such things as the total ton-miles per trucker or loader and the cost per ton-mile per loader.

The total ton-mileage per trucker or loader is simply multiplying the average speed of the trucker by the average load by the time consumed in moving the load, and dividing this by the total time. The cost per ton-mile equals the wages per hour divided by the ton-miles per hour of the loader.

For the benefit of dealers and truck owners it may be well to know how to determine the saving in handling goods by machinery or with conveyors when either loading or unloading.

The facts which must be considered in making installations of loading devices, etc., are: first, where can one make a saving by using such devices? Second, how much can one reduce the labor cost at these points? Third, what investment will be remunerative? Fourth, will these changes pay and if they are in line with future developments of the establishment? And fifth, what type of commercial apparatus is best to accomplish the results in the particular case under consideration?

There is no use going into the discussion of savings which such devices as mentioned result in if installed where it is advisable to use them, because so much has been written on the subject. Perhaps not so much when it comes to motor trucks, but in industrial conditions in general.

There is a shortage of labor in this country because of the large number of men who have joined the colors. Something must be done to take their places. Mechanical means are the only possible means.

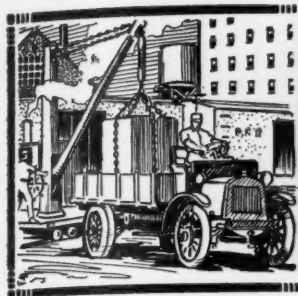
Therefore it is the duty of every dealer to help the truck owner, not only to see how the truck is the best vehicle of delivery, but how he may use this new vehicle of delivery to greater advantage by the use of so-called auxiliary devices and relieve the tension under which he is working because of the shortage of labor.

Now the advantages which the dealer will receive by advocating the use of such apparatus is the opportunity of studying truck cost and performance in different kinds of businesses under the most favorable conditions. This will afford him reliable information to give to prospective owners who are still in doubt about the buying of a truck. These installations and the observations thereof will be instructive data to use for future sales.

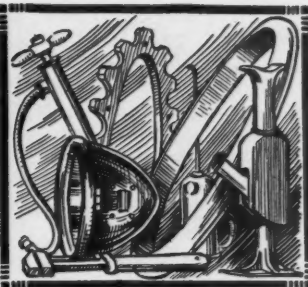


The French Government Recognizes the Labor-Saving Value in Conveying and Loading Devices

France has every available man in the field, facing the Germans, hence she must adopt every labor-saving and man-conserving device possible behind the lines. This photograph shows a view of a stone quarry in Alsace, where much stone is obtained for the maintenance of French military roads.

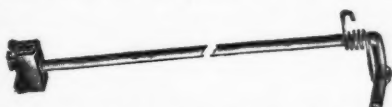


TRUCK ACCESSORIES AND APPLIANCES



Stay-on Oil-Cock Wrench

A device to readily enable one to test the oil level in the Ford engine is being marketed by the G. & H. Mfg. Co., 21 E. 4th St., New York City. It is necessary only to lift up the handle of the Stay-On oil cock wrench, and if the oil drips you have oil for a day's run from 50 to 100 miles. If no oil drips add a pint or enough until oil drips, allowing 1 min. for oil to reach back of crankcase.



Testing the Oil on a Ford Car Made Easy

This arrangement is attached in a few moments. Simply insert a screw driver between the side splash pan and the front fender. Toss one end through the opening and place the other end over upper oil cock, press together the sides of the wrench socket end with pliers, and the wrench is attached. For cars that have no side splash pans, fasten spring with bolts through fender. The spring prevents the wrench from rattling. The price of this wrench is \$35.

Deoxidine Patented Process

It is an established fact that steel to be painted must be absolutely clean, as otherwise the paint will not prove serviceable. Rust and all substances that produce rust, such as soldering, fluids, acid runs and hand marks, must be removed, for they keep acting under the paint and produce defects in the finish. Non-drying oils must be removed, as they prevent the paint from adhering to surface and keep it from drying properly.

The American Chemical Paint Co., of 1118 S. 11th St., Philadelphia, has a patented process known as the Deoxidine, which combines the cheapness and the ease of operation of the gasoline emery-cloth method with the rust-removing and other good qualities of the sand blast, and several features of its own. It will clean and prevent rust, but can hardly be considered as a rust-proofing process. Yet after the paint is applied the surface is practically rust-proof. It removes any traces of oil that may happen to be present and produces a surface that slightly absorbs the first coat of paint, thereby causing it to adhere firmly. No royalties are charged for the use of the process, but the company retains the sole right to make and sell the chemical agent, Deoxidine, which is usually supplied in bar-

rel lots. The process has proved itself to be an excellent cleaner and a good means of binding the paint to the steel, and a positive method of preventing the formation of defects in the painted finish.

New Britain All-Steel Bench Drawer

A new New Britain product is the all-steel bench drawer featured by a hem of triple thickness around upper edge and the welding of all joints, which combine to produce a drawer of strength and durability. A solid sheet metal top prohibits any tampering at rear and prevents blocking or lock out through wedging of contents. In addition, it serves to exclude any oil or water that might soak through from above. The slide ways are integral with the top and give the drawer a free, smooth movement without binding or cramping tendency.

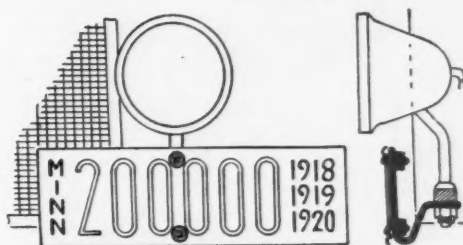


New Britain Steel Drawer

The handle is of generous size, with a shape of special design, which affords a comfortable hand hold. A cylinder lock of good grade and two individual keys are provided. Master keying may be had, if desired, at cost. The possession of master keys by foreman will prevent the stowing of contraband in drawers. The drawer is sold as a unit, requires no fitting and is easily and quickly installed without cutting of the bench. Outside dimensions are 18 in. long, 16 in. front to back and 5 in. deep. Overall dimensions, 19 in. long, 16½ in. front to back and 5¾ in. deep. It is manufactured by the New Britain Machine Co., New Britain, Conn.

Front License Bracket for Ford Commercial Cars

This bracket is fastened to the left headlight support and keeps the license in a clearly visible and secure position without injury to or interference with any other attachments. The double curve



Bracket Attached to Left Headlight Support

shown in the side view gives the correct position to the license. The attachment is made of heavy gauge steel, black enameled, with slotted holes with bolts and washers for fastening license. It is manufactured by the Midway Mechanical Co., 1555 Selby Ave., St. Paul, Minn.

A Gasoline Consumption Meter

Irwin W. Masters, of Muncie, Ind., the manufacturer of the Masters Gasoline Meter, speaks of his product as a motor car efficiency meter. He points out the need of a continuous record of the gasoline consumption in this way: A commercial car that runs 5 miles per gal. today, may, because of some little defect, run only 3 miles per gal. tomorrow. This

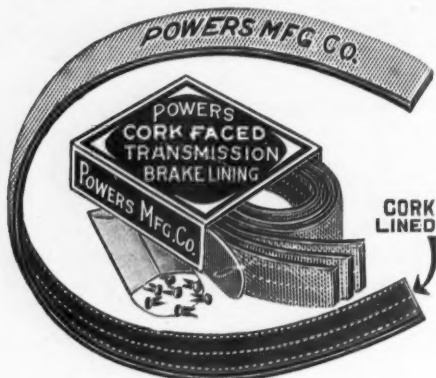


The Masters Gasoline Meter

is a well-known fact. An occasional test of mileage will not show these defects, but a continuous record of the consumption right before the driver's eye will. A record of the gasoline consumption is practically an indicator of the engine's efficiency. The meter registers in gallons and tenths of gallons.

Cork-Faced Transmission Band Lining

A new product, just announced by the Powers Mfg. Co., of Waterloo, Ia., is its cork faced transmission band lining for Ford cars. This lining is of strong solid woven webbing with natural cork sewed on the inside with a heavy thread. The

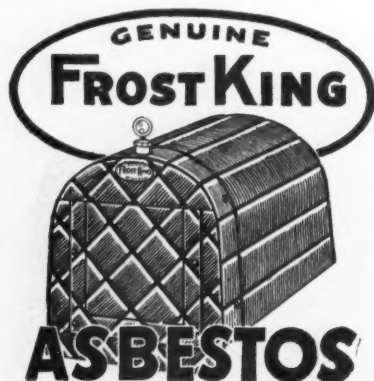


The Power Cork-Faced Transmission Band Lining

maker states the cork lining makes the brake work easy, as it has a soft grip and never wears smooth. The cork will not absorb the oil or grease, and the use of this lining eliminates the jerking and slipping. It is stated to possess unusual wearing qualities and prevent damage due to shattering when the brakes are applied. It is packed 3 pieces in a box, the correct length for Ford cars, complete with the necessary rivets.

"Frost King" Radiator and Engine Covers

Frost King Covers are made by J. P. Gordon Co., 272 N. 4th St., Columbus, O., and are of good quality imitation leather, waterproofed outside, with a genuine asbestos center, and a kersey blanket. All Frost King covers are of



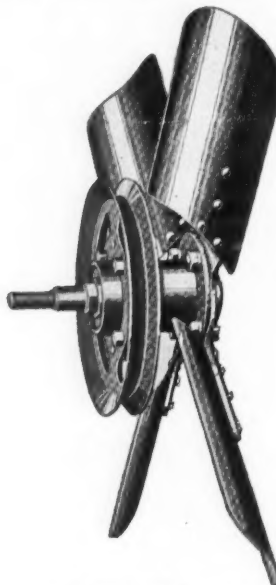
Cover up Your Radiator

three ply construction. The manufacturer states that it is the design of one of the best insulating engineers in the country. Two styles are made; the specifications of the Frost King Regulator are given above. The Frost King Black Diamond differs in that it is made of the finest quality long grain rubberized auto top material—guaranteed not to crack

or peel, and with the finest quality soft gray lining. Prices range from \$3.25 to \$11.25.

A New Cooling-Fan Design

The Oakes Co., of Indianapolis, Ind., are producing and marketing a new design in radiator cooling fans. It is of the original design of Mr. Carl Swenson, who for the past five years has been superintending the manufacture of Oakes Fans. The Fan, a sectional view of which is shown, has been worked over and tested in the Oakes factory, and the features embodied go to make up a truly efficient cooling fan. It has sturdiness, lightness, quietness, balance and ability to draw air with economical hp. consumption. The bearings are enclosed,



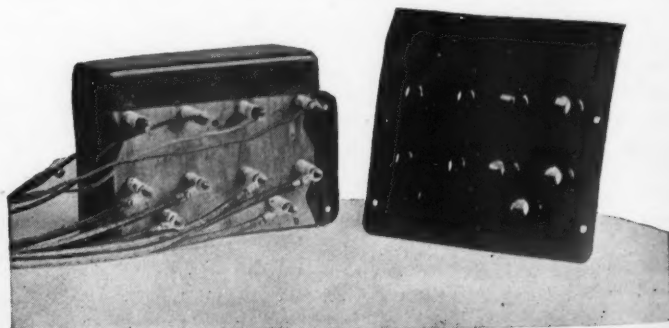
The New Oakes Fan

excluding all foreign matter, and allowing lubricant to be retained for long periods. It can be modified in construction to suit any need, that is, flat or V belts, either rotation and any diameter.

Ford Coil-Box Protector

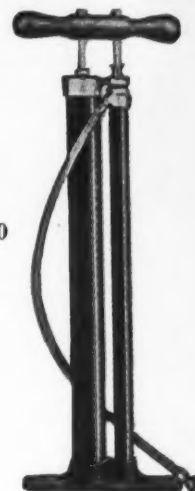
Proper ignition must be had for the efficient working of a Ford, and rain, wet and damp weather must be kept from the coil box. This is quite a unique method of protecting the coil box on a Ford car. The illustration is so simple that no description is needed, but it is very practical in operation and does the work. The Cooper Auto Supply Co., of Thomasville, Ga., is the perfecter of this device, which retails at \$1.

Unique Method of Protecting a Coil Box.



The Moon Pump

A hand tire pump claimed to develop 80-lb. pressure in 80 sec. is being produced by Moon Bros. Mfg. Co., of St. Louis, Mo. The full contents of the air cylinders are discharged with every piston operation, while the piston arrangement utilizes every ounce of air. Valve



The Moon No. 10 Double-Action Pump

construction lets air pass from pump freely and prevents its return. They are well built and durable and will not dent nor rust. They are backed by a guarantee of the manufacturer. No. 20, a single action pump, has a 1¼-in. smooth steel cylinder, with a ¾-in. rod. The height overall is 23 in., and the pump is equipped with a 24-in. hose.

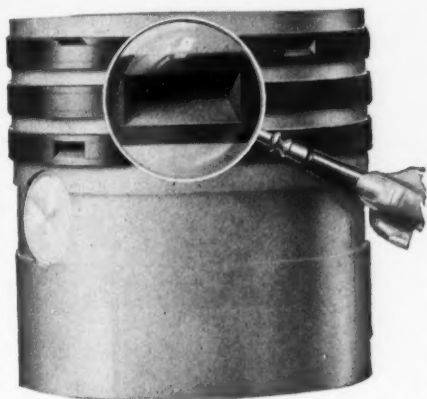
The No. 10 double-action pump has ¾- and 1½-in. cylinders and 5-16-in. rods. The leather cups are impregnated with oil. The air valve, ball-type, with brass seat, prevents back pressure. The base and cylinders are japanned, and the cap is gold bronze. The height of the pump overall is 19 in.

Endless Web Belt

Otto E. Geisel, of 706 Chestnut St., Philadelphia, is the maker of an endless web belt. This belt is useful for fans or any other place where a hard gripping endless belt is needed. It grips at low speed as tightly as at high speed and is as strong at the joint as at any part of the fabric. It works on delicate and complicated machinery where leather is not practical. It can be supplied heavy or light, according to the character of work. Water will not impair its strength or grip, and, it is stated, it can be used anywhere a flat belt of any kind is used.

V-Plex Piston Ring

The V-Plex piston ring, manufactured by the V-Plex Piston Ring Co., 2133 Michigan Ave., Chicago, Ill., is featured by its long wearing qualities. It is made so that the ring groove will be filled not only when first installed, but also after



The V-Plex Piston Ring Installed

long and continued use. This is accomplished by its construction, the side expansion feature keeping the groove permanently filled and preventing slapping due to a worn ring in the groove. The maker states that, since these rings properly distribute the oil, they prevent any excess from passing into the compression chamber and the fouling of spark plugs and formation of carbon deposit.

These rings retail at from \$1 to \$1.75, according to the size.

Ovee Anti-Freeze

The Ovee Mfg. Co., of Louisville, Ky., is marketing its Ovee Anti-Freeze, which it guarantees to withstand a temperature of 20 deg. below zero. The claim of the manufacturer is that if this Anti-Freeze is dissolved in water, in the proportion of 2 lb. to each gallon, it will render your radiator safe from damage by freezing for a whole winter, as it does not evaporate and will not need replenishing during the entire winter. As the water evaporates, simply add more water. The Anti-Freeze remains until it is drained out. It is a well-known fact that alcohol evaporates very readily and must be replenished from time to time during the winter, rendering its use expensive, and as there is no means of recording the evaporation of alcohol there is always danger of the quantity in the radiator becoming so low as to permit cylinder block to freeze and burst without warning. The original amount of this Ovee Anti-Freeze remains in the radiator regardless of the evaporation of water which takes place. It is odorless and claimed to be non-injurious. It contains no acid or other injurious ingredients and will not injure the hands, clothing or any part of the automobile, radiator, motor or water piston. It comes packed in a neat carton and retails for \$1.60 per carton.

Two New Products Added to Unique Line

Will. N. Lane, of 180 N. Dearborn St., Chicago, Ill., manufacturer of the "Unique" line of tools, offers two new products in this field, in the Lane Unique Ratchet Off-Set Screw Driver and the Unique Ratchet Wrench Set.



Lane Unique Ratchet Off-Set Screw-Driver

The Off-Set Screw Driver should certainly be a very useful tool to the trade, as the manufacturer states that its principal object is to turn screws that are not accessible to a screw driver with a long straight handle. Due to its leverage, it will readily loosen screws in positions that are practically impossible to reach with the ordinary screw driver. It consists of a drop-forged handle, and two sizes of screw driver bits, which are interchangeable, and tempered in oil.



Lane Ratchet Wrench Set and Container

The Super Unique Ratchet Wrench set contains the following: 9-in. drop-forged handle; 8-in. extension bar with thimble attached, 15 hexagon sockets, machine made. The broached openings of the sockets range from 7-16 to 1 1/4 in. and fit all size nuts within this range in S.A.E. standard from 1/4 in. to 3/8 in., in United States Standard Bolt, from 3-16 in. to 3/4 in., and cap screws from 1/4 in. to 1 in.

An Anti-Freezing Solution

Norwesco 12-20 is a non-freezing solution manufactured by the Northwestern Chemical Co., of Marietta, O. It will give protection to the radiator and cooling system to 20 deg. below zero. In place of finding the leaks in the radiator, it is the tendency of this solution to keep it and the cooling system fluid tight. Its boiling point is 12 deg. higher than water, hence it evaporates very slowly. It is claimed that this solution warms the engine more quickly than water, thus reducing the popping and enabling the engine to settle sooner into a smooth, easy motion. It is made in three sizes, the 1-gal. size selling for \$1.25, 3-gal. can \$1.15 per gallon, and 5-gal. cans at \$1 per gallon.

Non-Freez-Ene

This is a product marketed to prevent the freezing of the radiator. It is added to the water in the radiator and, depending upon the quantity of Non-Freez-Ene added, you can protect the radiator of the truck from 30 to 60 deg. below the normal freezing point, at a very slight cost, and do it in a few minutes. It does not evaporate, and application is good for all winter, unless it is allowed to leak out or boil over. The latter is not likely, as this preparation raises the boiling point of water 20 to 40 deg. It will not attack the metal of the radiator, rubber hose connections or packing, and it is claimed that it has a beneficial effect on the cooling system, as it prevents rust and corrosion. One package of Non-Freez-Ene will protect the water in a Ford radiator to 15 deg. below zero. For larger trucks two packages should be used. Cartons containing 8 lb. net retail for \$1.50. It is marketed by C. A. Benoit, Sheepshead Bay, N. Y., who also produces Permatex Anti-Storm, meant to protect the top of commercial cars and trucks, that is, the pantasote or leather tops, and will prevent leaks. It is absolutely rainproof and extremely durable. It renews the tops in the way that it gives leather or pantasote tops a rich black velvety finish. It dries in about 3 hours and positively will not crack when the top is folded. Applied to mohair tops and upholstery, it covers grease and rust spots, water-proofs the fabric and revives the silky luster of new mohair.

The list price for this product is, 1-pt. can, \$1; 1-qt. can, \$1.75 each.

Noreca Grease Cups

The Noreca grease cup has a non-removable cap and consequently no threads to get jammed. A half turn of the cap opens or closes and locks it. The opening is filled with a grease gun, grease tube or paddle, and the plunger screwed down as much as you wish. No



The Grease Cup is Shown Open Ready for Filling

grease will ooze out, because of a multiple seal, the inner wall of which is an expanding sleeve; the more pressure, the tighter the seal, and the grease goes where needed, to the bearing only. This cup is known as the style C and is shown open, ready for filling. It is made by the Greist Mfg. Co., New Haven, Conn.

Neverout, Style 55, Standing Lamp

The Rose Mfg. Co., of 910 Arch St., Philadelphia, has recently brought out the style 55 S. oil lamp, designed to illuminate front and rear when the automobile is standing. It contains the well-known Neverout features, burns coal oil and is always entirely free from grease



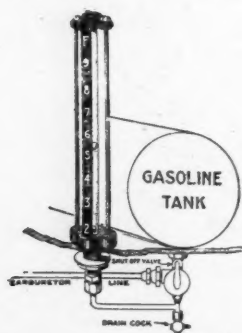
The Neverout Standing Lamp

because of the insulated kerosene reservoir. It can be easily taken apart and cleaned. In the front is a bright, clear lens and in the rear a red semaphore lens, with red and green sidelights. The height is 6½ in., the front lens 2½ in. and the rear semaphore 2 in. The finish is nickel or black enamel.

The bracket as shown in the illustration is packed with each lamp and can be used on either the right or left side of the windshield, or, if desired, on the bows of the top. This lamp will prevent the running down of the battery, since the electric lights can be turned off during the time the car is left standing.

Gasoline Gauge for Ford Commercial Cars

Baer & Glauber, of 2041 E. 93rd St., Cleveland, O., is manufacturing a gasoline gage for Ford Commercial cars attached to the gasoline tank at the outlet. The gage itself is an upright glass tube, placed between the occupants of the front seat close to the seat and ex-



The Gasoline Gauge Attached

tending upright from the floor. It is always in plain view and will show at a glance the number of gallons in the tank. A red ball is provided which floats in the gasoline gage, thus facilitating reading. The price of the gage with all connections is \$2.

Leather and Fiber Pump Washers and Cup Leathers

The Excelsior Leather Washer Mfg. Co., Inc., 323 Cedar St., Rockford, Ill., manufactures a complete line of leather and fiber pump washers and cup leathers, its line being known as the X-L brand. This concern is also manufacturing complete sets of cup leathers for various makes of pumps, so that it is possible for the owner of any certain pump to secure a complete set of new washers by ordering by the number only. It also has an X-L garage set, which consists of 100 assorted cups at \$5 per set.

The Shurnuff Manifold

The Shurnuff manifold is a 1-piece casting, combining the intake and exhaust, being cast integral, and so constructed as to allow the exhausted gases to pass over the intake in such a manner that the incoming vapor is more properly mixed and vaporized before entering the cylinder, thus insuring a smoother running and more powerful engine at all speeds. It can be used with equal success in both winter and summer, it is claimed, at a saving of gasoline. The proper degree of heat is stated to be maintained, and the overheating of the



The Shurnuff Combination Manifold

engine is thus eliminated. It is recommended for drivers who make frequent stops, as it retains heat for a considerable length of time, and starting is thus made easier. It can be attached to any model Ford car in less than an hour, and no special tools are required. It is finished in aluminum with all necessary gaskets and makes a neat display on the shelf. A counter display card is enclosed with each manifold. The price complete is \$9 each. Made by the Shurnuff Mfg. Co., 3147-B Locust St., St. Louis, Mo.

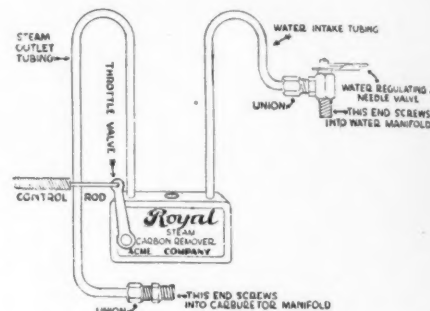


Spiral Reamers for Ford Bushings

Reamers suitable for working brass, bronze, iron or soft steel are offered by the Thomas Dunham Company, Inc., Aurora, Ill. The upper illustration shows the reamer for the spindle body and spindle arm bushings. It reams them in perfect alignment at one operation. The spiral flutes are especially convenient for reaming out split bushings. The middle reamer is for reaming through the piston pin bushings at one operation, and the one shown at the bottom is the Ford transmission triple gear flanged bushing reamer.

The Royal Steam Carbon Remover

The Royal Steam Carbon Remover is a device with connections to the water manifold and the intake manifold and is designed to supply super-heated air and steam, the super-heated air being to complete the gasification of the fuel and the steam to remove the carbon, which is



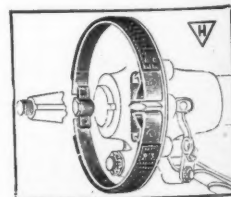
The Royal Steam Carbon Remover

blown out the exhaust after being loosened. The maker states this device will save gasoline and increase the speed and power as well as improve the engine efficiency.

The steam generator itself is connected to the exhaust manifold. To this steam generator is introduced the water from the water manifold, the flow of which is controlled by the water regulating needle valve. From the steam generator is the outlet tubing which leads to the intake manifold, this outlet being controlled by the throttle valve from the dash board of the car. The retail price of this device is \$7.50. It is manufactured by the Acme Co., 90 W. Broadway, New York City.

Humboldt Pressed-Steel Brake Shoe for Ford Trucks

These brake shoes are designed to fill the want of an effective brake and are made in one piece of the best grade of steel and are unlike the old-fashioned



The Humboldt Shoe for Ford Trucks

cast iron shoes in that they cannot break, slip or warp, and the lining can be replaced in a few minutes when worn. They are guaranteed to last from 10,000 to 25,000 miles on the original set of linings. They fit all Fords, 1909-17, and are guaranteed to give unqualified satisfaction. The price per set of 2 is \$2. Manufactured by the Humboldt Machine & Stamping Co., Long Island City, N. Y.

Gasoline and Oil Gauges for Fords

The Buffalo Oil Gauge shows the height of oil in the transmission case through the means of a float chamber with indicator on dash, and the manufacturer asserts that it will pay for itself in a short time by reason of the saving of oil effected.



Buffalo Oil Gauge Attached

The Buffalo Gasoline Gauge is installed on the dash and shows the amount of gasoline in the tank without the driver moving from his seat or stopping the car. It is simple in construction and reliable in action. It is light, but strong, and neat in appearance. Both these accessories can be readily attached by any one with ordinary tools. The devices are guaranteed by the maker, the Buffalo Gauge Co., 336 Hampshire St., Buffalo, N. Y. The price of each article is \$2.50.

Goodell-Pratt Socket Wrenches

These 2 socket wrench sets are an excellent addition to a truck driver's kit. The sockets are made from malleable iron, broached to exact size and fit perfectly the nuts for which the socket is intended. The handles are of steel and are 8 1/4 in. long. The sockets are made in sizes of 11-16, 5/8, 3/4 and 7/8 in. The



Socket Wrench Set No. 380



Socket Wrench Set No. 378

price for set No. 378 is \$1.60. Set No. 380 consists of 4 sockets, sizes 11-16, 5/8, 3/4 and 7/8 in. and a knurled steel handle. The handle is detachable and fits all of the sockets, thereby condensing the outfit somewhat. The price of set No. 380 is \$1.60 also. Manufactured by the Goodell-Pratt Co., Greenfield, Mass.

Trax-Yun Chains

Trax-Yun chains are made of flat broad links. These chains are loosely looped around the felloe and tire, each unit separate. The springs on the center ring are attached to the ends of these chains combining them into a complete unit. This chain can be pulled as tight as you wish around the tire and felloe, but is locked in a triangular grappling. There is about an inch of slack provided, which gives a freedom of movement that means a definite amount of tire wear removed. Continued sudden application of the brakes, dead stops ordinarily mean a hole gouged in the tire, a broken anchor or a broken chain, but these chains are not anchored rigidly in one spot, a practice which commonly causes



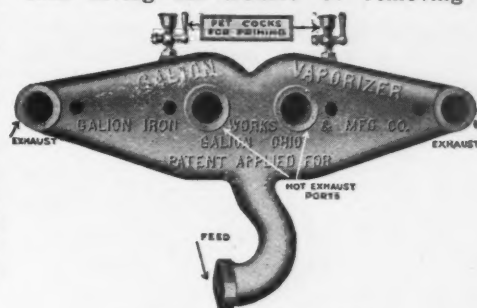
Trax-Yun Chains Attached to Tire

gouging of tires. On this type they are loosely looped around the tire with slack enough to allow them to slide along the tire distributing any slight wear over about a foot of tire surface, so not allowing them to bang the bender. The springs on the center ring exercise the tension which makes this possible. The length of each chain is adjustable to the size of the felloe by a series of straight links shown at the end of the chain. These links are for locking in a triangular grab hook, and the springs on the center ring are attached to their respective chains. This ring fits over the hub out of the way and combines every separate chain into a complete unit, a powerful, durable, anti-skid traction device. The prices range from \$9.25 per set to \$35 per set for single solid tires and for dual solid tires the prices are from \$20.25 to \$37, including every size in both instances.

They are manufactured by the Cleveland Chain & Manufacturing Company, Cleveland, Ohio.

Kerosene Manifold for Fords

The accompanying illustration is of the Galion coal oil vaporizer, designed to burn either gasoline or kerosene with unusual fuel economy. The Galion vaporizer has two pet cocks, which enable you to prime your engine with ease, thus saving the trouble of removing

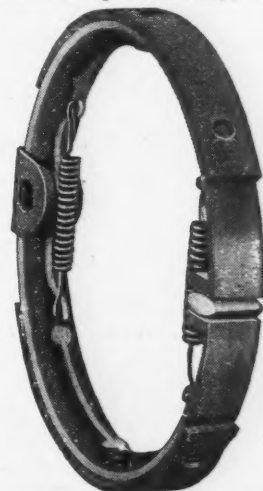


The Galion Vaporizer Manifold

spark plugs in the old-fashioned way. It is made of cast iron and is durable. It has no delicate or complicated parts to get out of order and does not require an expert to apply it. It is shipped complete, and no changes are necessary to install on the engine. The regular carburetor may be used. It is guaranteed by the manufacturer, the Galion Iron Wks., Galion, O.

Shumaker's Lined Emergency Brakes

A new emergency brake for Ford cars made of malleable iron castings is being manufactured by the Clamert Mfg. Co., East End Trust Bldg., Pittsburgh, Pa. Each shoe is made in 2 pieces, these being joined by a patented hinge made of sturdy unbreakable sheet steel. This hinge holds the parts firmly, as if they

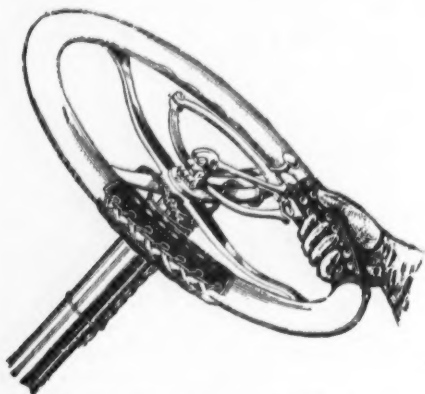


The Shumaker Emergency Brake for Fords

were one piece, but permits even expansion. The 2 pieces of the shoe are malleable iron castings, and, the maker states, will outlast the car. They are lined with asbestos, brass wired brake lining, firmly riveted on each shoe. This gives a safe, smooth friction. When the brakes are applied the lined sections only strike the inside of the drum. Consequently, there is no grinding or wearing of the malleable shoe or the drum. The price is \$3.50 per set, complete.

Steer Warms

Steer Warms consist of two electrically heated leather covered brass grips that are placed on the steering wheel in any convenient position. The brass plates not only protect the heating elements, but radiate the heat, requiring only as much current as the electric headlights. They keep the fingers and hands from becoming chilled on a cold winter day. That usually means that



The Steer Warms Attached

you are warm all over. It also means that you can drive more safely and protects you to a great extent from catching cold. It takes but a few minutes to attach this accessory and does not mar the wheel. There are no holes to bore, and the current is taken from the storage battery or generator. Steer Warms are guaranteed not to harm or deteriorate the battery. They are also guaranteed to give satisfaction, and not to burn out within 5 years, if properly connected. The price for all standard cars is \$7.50, while that for Fords is \$5. Manufactured by the Interstate Electric Co., New Orleans, La.

Outlook Windshield Cleaner

The Outlook Company, of Cleveland, O., offer to motorists a windshield cleaner, known as the "Outlook," that entirely eliminates the danger of driving in rain or snow.

Here is a cleaner that combines a scientific rubber squeegee strip with the exclusive rubber roller. It cleans effectively—surely and easily.

A touch of the finger operates the "Outlook." As the squeegee strip moves over the glass it wipes clean at every point, because the rubber roller, adjust-



The Outlook Windshield Cleaner

able to your car, holds the strip close and even to the glass at every point. The rubber roller also prevents swaying and rattles. It keeps the cleaner up out of the way when not in use.

The "Outlook" can be attached in a few minutes, and once in place needs no attention. It is strong, durable and good looking. Outlook Windshield Cleaners are standard equipment on the 16-Valve White.

They fit any car, gas, steam or electric, open or closed. To touring or open cars the Outlook Regulator attaches to the windshield frame. Its design provides for close-fitting tops. To closed cars the Outlook Special attaches through the glass. The method of attaching is the only difference in these two types.

Either type of Outlook Cleaner sells for \$1.50, ready to attach, and is a good seller because it meets a definite need.

Taplex Handy Warmer

The Taplex Corp., at Broadway and 34th St., New York City, is marketing the Taplex Handy Warmer. This little device readily fits into a pocket and on very cold days produces much comfort to the driver of a motor truck, by rea-



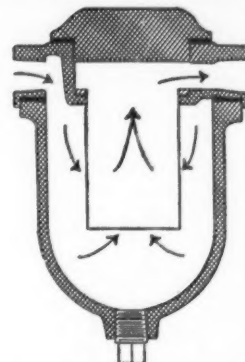
The Taplex Pocket Warmer

son of the fact that he can reach into his pocket at all times and secure his little stove and derive therefrom the necessary warmth. This is also made in sizes large enough to be used as a foot warmer. It lights with a match, and there is no trouble to start the heat going. It burns without flame and can be used anywhere with safety and confidence. It is neat, clean, simple and safe. It is smokeless fuel, and comes packed in a velvet bag with 2 tubes of Taplex smokeless fuel at \$.50.

Strainer for Gasoline Line

The body of the Holtzer-Cabot Gasoline Strainer, illustrated herewith, is made of an aluminum casting with a bronze No. 120 wire mesh. The strainer is placed between the fuel tank and carburetor and has over 6 sq. in. of straining surface. The diagram shows how the gasoline comes into the strainer, passes through from the outside into the carburetor; every speck of dirt and every drop of water is held back, and it is claimed that any impurities will be kept from the carburetor. All foreign mat-

ter falls to the bottom of the cleaner. It is simple to clean. A little plug at the bottom is opened, and the dirt and water falls out easily. When once installed in the line it need never be taken

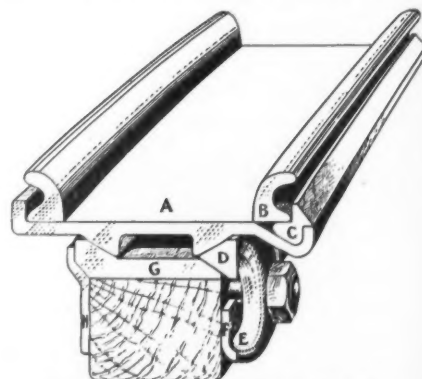


Holtzer-Cabot Gasoline Strainer
A sectional view with arrows indicating the flow of the fuel

out again. Perfectly clean gasoline will certainly save a lot of engine trouble and give greater power to the car. This accessory is manufactured by the Holtzer-Cabot Electric Co., of 115 Amory St., Roxbury, Mass., and is supplied with mounting bracket and unions if required.

Firestone Pneumatic Truck Tire Rim

The Firestone type C demountable rim is known as the Universal, being interchangeable for straight, side or clincher pneumatic truck tires. The parts of the rim are: "A," the continuous one-piece surface; "B," continuous reversible side rim; "C," split locking ring; "D," split wedge ring, wedging ring on felloe band; "E," in continuous circumferential contact; "F," clamp; "G," support for clamp,

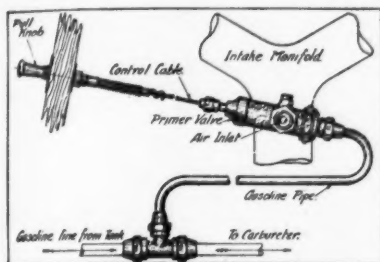


Firestone Pneumatic Truck Tire Rim

and "H," reinforcing ring for felloe band. The new type rim shows the improvement in construction over the original rim. The big advantage in this construction is that the rim is 16 lb. lighter without sacrificing anything in strength. The fact that the manufacture of pneumatic truck tires has been standardized on a straight bead makes the Universal rim no longer necessary. Therefore, instead of a removable ring being placed on the inside of the rim, a permanent extension of the face serves the same purpose.

The Copley Primer

The Bay State Pump Co., 100 Purchase St., Boston, Mass., is marketing the Copley Primer. The purpose of this device is to meet the demand for a dependable method of starting a cold motor, and to put an end to battery drain and starting system troubles, and the eliminating of the heart-breaking work of cranking a heavy truck by hand.



How the Copley Primer is Installed

It is claimed that under tests with the most difficult conditions to face this primer enables the motor to start under the first impulse from the starter, and that the motor catches every time, regardless of cold weather and other adverse conditions.

The continuous action which is claimed to be an exclusive feature of this primer is so perfected that it will run the engine with no assistance from the carburetor. This holds two good features: It greatly assists in warming up the engine after it has started, and it enables a commercial car with a crippled carburetor to get home using the primer alone. This device retails for \$5.

Alert High-Speed Tap Wrenches

A high-speed tap wrench, made to meet various requirements and for tapping and reaming in out-of-the-way places, can be had in the ordinary size or in an extra long size for tapping or reaming in places hard to get at, and is also made in a style for pulleys. The tap can easily be removed from the work and in much less time taken than with the old-time wrench. The jaws are broached square on the inside, firm grip, and the tool is finished nicely and well made. The jaws are made of high-grade tool steel, properly tempered, and made to close to fit diameters of taps. The closing sleeve is of the best quality machinery steel, case hardened.

For pulleys and similar work, where it is not desired to drill so large a hole,



The Alert High-Speed Tap Wrenches

Above is shown the long tap for tapping and reaming in out-of-the-way places. This tool obviates the necessity of making up a special tap or reamer holder. The style, as shown below, is for pulley work, the high-speed tap wrench for ordinary use being shown at the right.

the style X with square shank is well adapted. These are made ordinarily in 12-in. lengths, but other lengths can be had to order.

In addition to the tool described herewith, a line of hardened and guaranteed tap wrenches of various lengths and capacities made by specialists, is manufactured by this concern, the Alert Tool Co., 237 N. 6th St., Philadelphia. The tools in this line are stated to contain all the new features in tap wrench manufacture.

Hood and Radiator Covers

The Gilbert Mfg. Co., of 70 Center St., New Haven, Conn., is manufacturing the Gilbert radiator and hood covers for practically every make of automobile. The hood covers are easily attached and adjustable for all temperature conditions.



The Radiator Cover is of Artificial Leather.

They are of artificial leather, dull finish drill, or enameled duck, the lining being a high-grade blanket cloth. The maker states these covers fit well and protect the circulation system. The prices for the radiator and hood cover range from \$11 to \$16; for the radiator only, from \$9 to \$13. These prices effective October 1, 1918.

The Olsen Kerosene Vaporizer

The United States Vaporizer Co., of 214 State St., Boston, Mass., is manufacturing a kerosene vaporizer that can be attached to any 4-cycle engine and uses kerosene as a fuel without sacrifice of power and flexibility. The manufacturer absolutely guarantees this product and claims that the engine may be operated at high speed or throttled down without a miss or skip and with no danger of loading up on the fuel and stalling. The maker states raw kerosene cannot possibly enter the combustion chamber, because every particle is thoroughly and completely vaporized before entering the intake manifold, and the complete vaporization of the fuel prevents the formation of carbon in the cylinder or around the piston. It also overcomes the difficulty found in using

kerosene, in the matter of lubrication. The prices range from \$35 to \$125, according to the size wanted.

Flexible Electric Heater

The Despatch Mfg. Co., 104 N. Second St., Minneapolis, Minn., is manufacturing the Despatch Flexible Electric Heater. This heater will enable you to use your car during cold weather by preventing injury to the starter, battery, etc., as well as saving time in starting a cold engine. When a car has been standing over night in a cold garage, the oil in the cylinders and crankcase gets stiff and calls for extra power to start. The cylinders are cold, the carburetor is cold and gasoline as well, and it would severely strain the battery to start such an engine. The Despatch heater is to remedy such conditions. It is generally placed with one end on the carburetor,

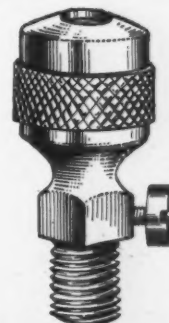


Despatch Flexible Electric Heater

with the other against the cylinders or crankcase and the electricity turned on with the hood down and a cover over it. The heater is not left in operation during the night, but simply started for a short period before it is desired to operate the car. The feature of this heater is its flexibility, which enables it to be placed in any position. The maker states the operating cost is one to three cents per hour. The retail price is \$7. This heater is attached to any electric light socket. It is generally made for 110-volt current, but can be had to order for 6-, 8-, 10- and 12-volt current.

Hugill Carburetor Valve

The Alliance Co., Inc., of 45 W. 34th St., New York City, is manufacturing the Hugill carburetor corrector valve, a small valve designed to be attached to the inlet manifold and guaranteed by the

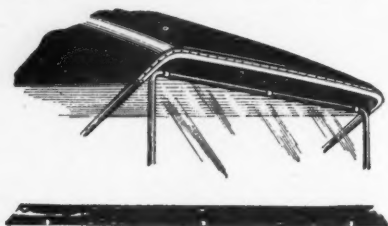


The Hugill Carburetor Corrector Valve

maker to increase the mileage per gallon of gasoline approximately 30 per cent. There is but one size of valve made for all cars, there being an adjustment provided to limit the capacity of auxiliary air provided. The retail price of the valve is \$3.

Anti-Draft Shield for Ford Commercial Cars

By means of snap fasteners this shield fastens on the bow of the top, and the pocket fits down over the side of the shield to keep out the draft from the top of the windshield and the bow of the



This Shield Affords Protection Against Drafts

top. It should be a good device for eliminating the draft and piercing winds that are admitted through the cracks and around the sides of the windshield in particularly cold weather. The price of this accessory is \$1. The maker is the Monarch Carriage Goods Co., Cincinnati, Ohio.

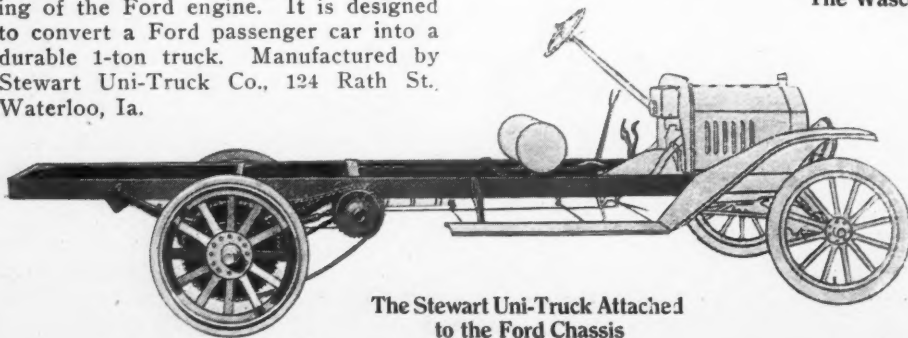


The Protex Oil and Grease Gun

This illustration shows the Protex Oil and Grease Gun, manufactured by the Protex Manufacturing Company, of 13-17 N. Jefferson Street, Chicago. These cylinders are of brass-plated steel tubes $1\frac{1}{4}$ x 9 inches. The plunger is of cork. To fill this gun the nozzle is given a quarter turn, it being unnecessary to remove the plunger. It is equipped with two nozzles and the price is 75 cents.

The Stewart Uni-Truck Converter for Fords

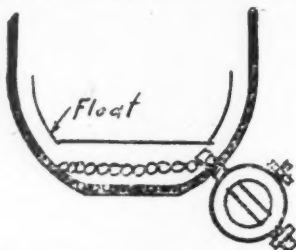
To attach the Uni-Truck it is not necessary to cut, weld or drill the Ford chassis, nor destroy any of the Ford parts. The frame telescopes and reinforces the Ford frame, and the whole device can be attached by any mechanic in 2 or 3 hours. The strain on the Ford engine, when carrying 1 ton, is approximately the same as when pulling 4 passengers in a touring car, because of decreased gear ratio to 7:1. The speed is 12-18 m.p.h. No additional weight or strain is imposed on any part of the car. It is claimed that it will not in any way increase the maintenance cost or working of the Ford engine. It is designed to convert a Ford passenger car into a durable 1-ton truck. Manufactured by Stewart Uni-Truck Co., 124 Rath St., Waterloo, Ia.



The Stewart Uni-Truck Attached to the Ford Chassis

Thompson Electric Carburetor Heater

A device to assist the starting of a cold engine is being manufactured by the Thompson Mfg. Co., Inc., 310 Second St., Des Moines, Ia. It consists chiefly of an insulated coil placed in the gasoline of the carburetor bowl, below the fuel level and the float of the carburetor.



The Insulated Coil is Placed in the Bottom of the Float Chamber

This resistance coil is connected through a switch to a battery on the car or truck. By merely pushing a button, the gasoline is brought within a minute to a boiling temperature in the carburetor. This hot gasoline vapor coming from it is then drawn into the cold cylinders, assisting easy starting.

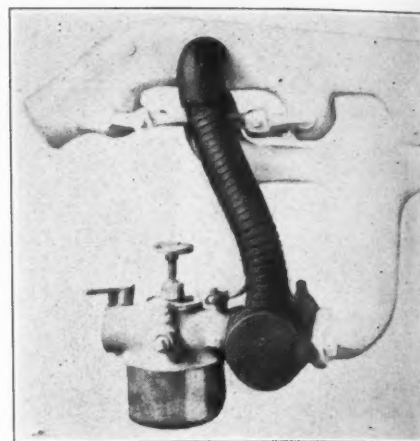


Adamson Brake Shoes for Fords

These are being manufactured in two types, one being the unlined, the other lined with abestos with wire insertions and riveted to the shoe. The faces of these shoes in contact with the cam are especially hardened to reduce the wear. They are made by the Adamson Manufacturing Company, East Palestine, Ohio.

The American Superheater

A device to increase the mileage of the Ford car by assisting vaporization is being marketed by the American Mfg. Co., of Jefferson, Ia. The device consists of a hot tube chamber inserted between the carburetor and the manifold and a section of flexible tubing through

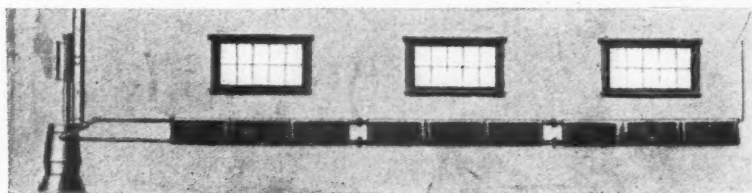


The American Superheater

which gases pass from the exhaust manifold to this hot tube chamber. The incoming mixture leaving the carburetor, in passing through this hot tube chamber, becomes more thoroughly vaporized, giving economy of operation, and in general increases the operating efficiency of the engine. The price installed is \$10.

The Wasco Garage Heating System

The Wasco Mfg. Co., Inc., 261 East Wood Sta., Syracuse, N. Y., is the manufacturer and builder of an interior garage heating system which gives protection to a truck even in the severest weather while stored in the garage. It keeps the motor warm at all times, especially during the night, and causes the engine to develop its power at once and be ready for use without warming up and running the engine idle, which is necessary when the truck is kept in a cold garage.



The Wasco Three-Car Heating System

This installation saves costly freeze-ups, cuts down repair bills, and saves gasoline in the starter, because the engine will work on the first or second turn, saving much labor on the part of the driver when the truck is not fitted with a self-starter.

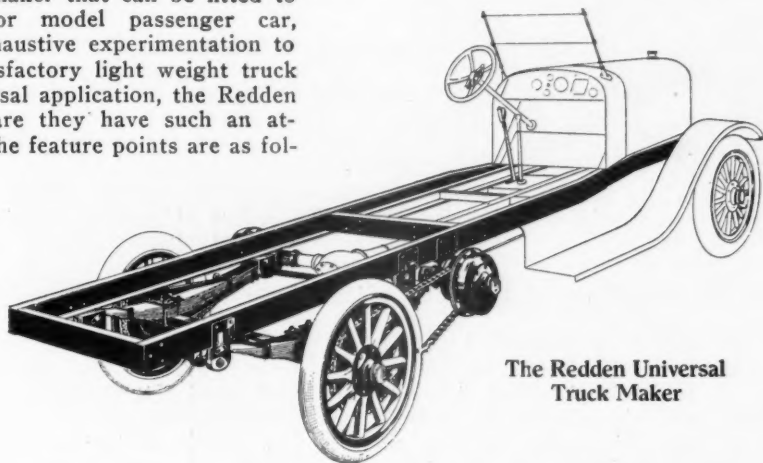
It is a coal burning, self-regulating, hot-water heating system, and can be had for from 1- to 10-car garages.

The cut shown here is of the 3-car system and has three radiators.

Complete Hauling Line. New Redden Plan

President S. S. Toback announces "War Need" combination to cut hauling cost. This new Redden combination, made by the Redden Motor Truck Co., Inc., of Chicago, Ill., comprises (A) Redden Perfected Universal Truck Maker, (B) Redden Ford Attachment, (C) Redden cost cutting Trailer. The broadening of the Redden line shows the manner in which the company's manufacturing program fits in with the Governmental needs. The big feature, of course, is the Redden Perfected Universal truck maker. In the opinion of the Redden engineers there has long been a market for a truck maker that can be fitted to any make or model passenger car, and after exhaustive experimentation to evolve a satisfactory light weight truck with a universal application, the Redden officials declare they have such an attachment. The feature points are as follows:

in which this axle shaft runs and also especially machined to fit the end of the axle housing where cut off. In the Redden Perfected Universal the necessity of this has been eliminated by using the old wheel hub as the jack shaft sprocket carrier, simply removing the wheel from the hub and replacing it with the bell flange carrier. This has eliminated the necessity for furnishing extra roller bearings and gives this attachment a perfect fit on the old axle shaft. In forming the connection between the truck attachment and the passenger car frame, the Redden Company has a uni-



The Redden Universal Truck Maker

only 4 tools are necessary to attach it; fits any model or make of passenger car, whether transmission is located forward or rear; fits on any axle, semi-floating, $\frac{3}{4}$ -floating, $\frac{7}{8}$ -floating or full-floating. There is no machining or milling required. Expert help or labor expense is unnecessary. It has a chain drive and the chain cannot jump off and it is composed of a high grade of material combined with simplicity of design. It is not necessary to alter the rear axle of any car in attaching the Redden Universal truck maker. In some instances it has been necessary to machine the axle shaft to fit the jack shaft sprocket carrying member, also to cut off the axle housing to a shorter length. This has necessitated the making of a special bracket or hanger for holding bearings

versal sliding joint whereby two steel bars are fastened tightly to the passenger car frame and by sliding on an angle are universal in so far that they will fit any width of frame. Realizing there might be a slight variation in the location of the spokes on the hub, due to a dished wheel or straight wheel being employed, the Redden Company has equipped the truck maker with varying thicknesses of spacing washers between the spoke replacement member and the sprocket carrying flange, thus enabling this attachment to line up the jack shaft sprocket perfectly with the sprocket on the rear axle of the attachment.

A special feature of this attachment is the jack shaft carrying member, which is so designed as to form a flange on one side of the chain, while the service

brake drum forms the flange on the other side in such shape that it is impossible for the roller chain to run off the jack shaft sprocket as it runs in between these flanges. This is a decided advantage, as the only way the chain can come off this jack shaft sprocket would be due to breakage of the chain. The Redden Company claims that any man with ordinary intelligence and without mechanical experience can attach this himself.

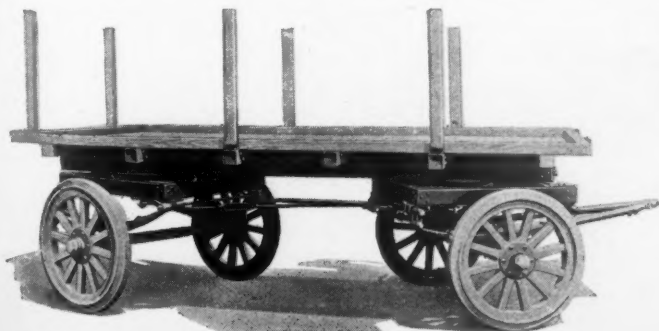
Using the Redden trailer, the delivery value of the truck may be doubled. According to the assertion of the manufacturer, after hauling the Redden trailer to the destination of its load, instead of waiting on "dead time," the truck is enabled to make a return with an empty trailer to the original starting point for another loaded trailer. Thus there is constant activity. This Redden hauling combination is an effective contribution to the solution of war time transportation and labor problems and it is adaptable to farm use.

The General Description of the Redden Trailer

The Redden trailer has been built with the necessary strength and ruggedness, but at the same time unnecessary parts have been eliminated to keep down the weight. The same grade of axle is used as in the Redden truck attachment and springs of ample strength are provided and attached to the frame, this in turn being attached to the main frame by a center or King pin. Each pair of wheels possesses a fifth wheel, allowing both axles to turn. The sub-frames are connected to each other by a cross bar arrangement to give the same turning radius. The cross bars are in the form of a turn buckle to provide adjustment and insure proper tracking of front and rear wheels. The wheels are artillery type, carrying S. A. E. standard rubber tires $34 \times 3\frac{1}{2}$ -in. The sub-frame is made up of four $4 \times 2\frac{1}{4}$ -in. pressed steel channel sections plated and has 3 cross members, gusseted. The fifth wheels operate on rollers attached to the sub-frame. The draw bar is attached directly to the axle, and the trailer is reversible. The main frame is heavy pressed steel channel cross sections, containing 6 cross members. The carrying capacity is 4000 lb.

Co-operative Ownership of Motor Trucks

Charles B. Landis, former Congressman from Indiana, now with the du Pont powder interests, states that farmers of the West are solving the problem of delivery of their products to elevators and railroad stations through co-operative ownership of motor trucks. A schedule is arranged for delivery of products, one farmer interested in the truck being taken care of one day, and another the next day. Often, it is possible for several to be taken care of in one day. The idea, according to Mr. Landis, is taking hold rapidly in the West and Middle West, and with excellent results.



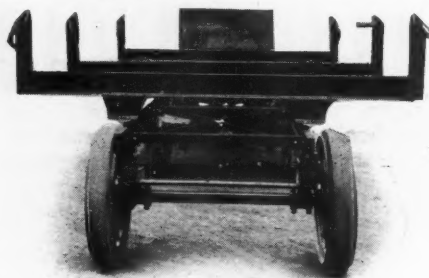
The Redden Trailer

Each pair of wheels is hung from a fifth wheel, allowing both axles to turn.

J. M. Case Trailers Built in Three to Ten-Ton Sizes

The J. M. Case Trailer Co., of Grand Rapids, Mich., announces a complete line of all-steel semi- and four-wheel trailers. The line consists of models of 3-, 4-, 6- and 10-ton capacities, and extension pole trailers, and also incorporates something new in the way of a jacking device.

The pole trailers are built in three sizes, namely, 3½-ton, 4-ton and 6-ton. The latter two are of the extension type and when telescoped give a wheelbase of 9 ft., and when fully extended, a wheelbase of 16½ ft.



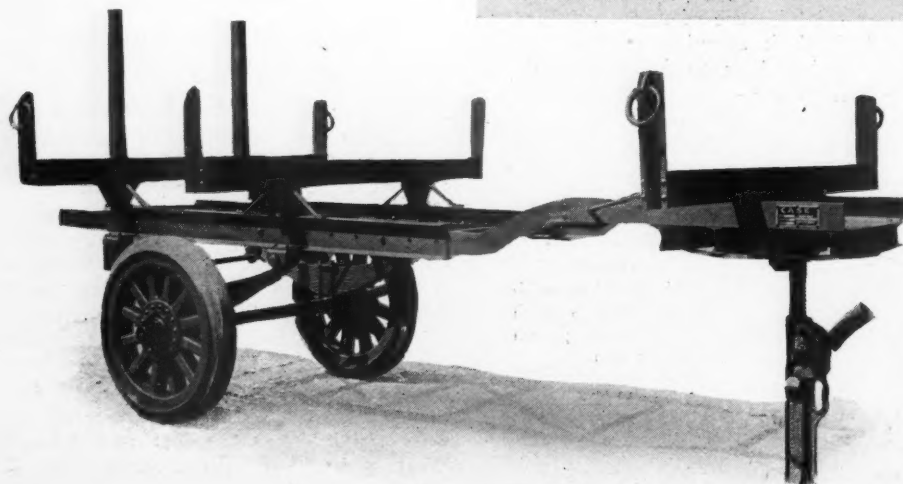
Rear View of the New Case Trailer

One important feature of this line of trailers is that any of the semi-trailers can be instantly converted into a four-wheel trailer by simply adding the Case front running gear. The front running gear unit is built in various sizes to correspond with the several semi-trailer capacities incorporated in the line.

This unit consists of axle, springs, wheels, tires, drawbar and steel turntable, upon which rests the circle of the semi-trailer, the king pin of the semi-trailer being locked to the center of the turntable. The drawbar is equipped with a spring shock absorber, so that the shocks and strains of starting and stopping are taken up.

The company is also furnishing trailer chassis equipped with gravity steel dump bodies.

The construction of the Case trailers is decidedly up to date, and the chassis are built entirely of structural steel channels of generous size. Wheels are fitted with Timken roller bearings and Firestone tires.

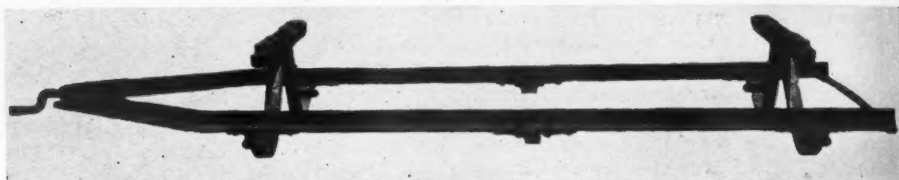


Side View of Case Two-Wheeled Trailer

The new jacking device is of the double-post type and can be operated by one man from either side of the trailer. When not required, the jack is swung up out of the way, and, as it is permanently attached to the trailer, it is always ready for service at a moment's notice.

Shaver Hammock Auto Trailer

The Shaver Hammock Auto Trailer is featured by the level and even riding body and the absence of any hard and jerky action, without the least restriction in the proper performance of the spring function. The maker states that, regardless of the road condition, the violence of the wheel and axle jar is not transmitted to the body. The features of construction are the angle iron frame and the triple curve cross springs which



Frame and Springs of the Shaver Auto Trailer

The frame and springs are the features of the Shaver Auto Trailer, the former being of angle iron, and the latter are triple curved

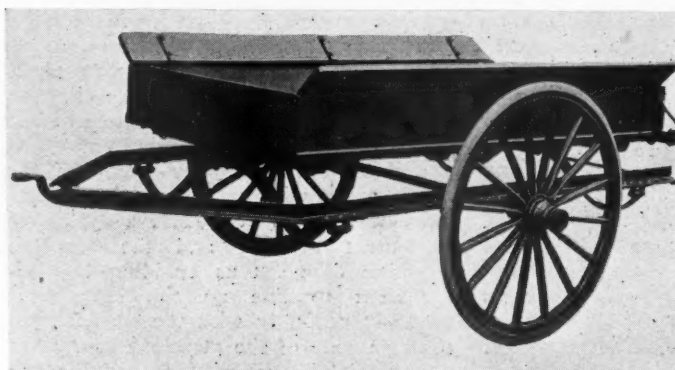
prevent the throw of the body going over rough roads.

The body rests upon the 2 triple curve springs, these in turn being hung upon the frame, which is attached to the car ahead and rides upon the axle. The wheels of this trailer are of second growth material, equipped with solid rubber tires and are equipped with roller

bearing axles. The maker states the body hangs from 6 to 10 in. lower than is usual in trailer construction. The trailers are offered in 3 capacities from 600 to 1200 lb. A trailer of this sort is useful to car owners and also the farmer, gardener, merchant, etc. Connection with the automobile is by one bolt, which has no lost motion and is easily and quickly attached. It is made by the Shaver Auto Trailer Co., East 3rd and Locust Sts., Des Moines, Iowa.

American Bronze Corporation Rewards War Workers

In conformity with a recommendation of the War Department that faithful service of employees engaged in the manufacture of war materials should be recognized, the American Bronze Corp.,



The Quarter-Front View of the Shaver Auto Trailer.

The feature of this two-wheeled trailer is the absence of front and back vibration and the level riding body.

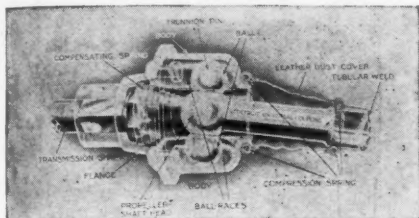
months, after which he is awarded a gold badge, upon which his name has been engraved. The gold badge entitles its wearer to the cash bonus during the entire period of his employment, provided he qualifies under the regulations.

The presentation of these badges was made a feature of the "house-warming" held on August 16, when the company's new plant at Berwyn was formally turned over by the contractors and accepted by M. C. Dittman on behalf of the company. The program included addresses by the department heads, followed by an entertainment in the evening. The new structure more than triples the capacity of the plant, and is of modern construction and equipment, including a carefully planned system of routing the work which makes for maximum efficiency.

New Universal Ball Bearing Joint

The Detroit Universal Joint, one of the ball bearing type, is manufactured by the Universal Products Co., Inc., 116 Woodbridge St., E., Detroit, Mich., and contains unusual features. Chief among these features are the lubrication of the joint and the ball bearing feature. This joint is light in weight, and the ball bearing feature which it possesses is designed to greatly reduce the spline thrust.

To eliminate the end thrust of the shaft, the elongation and contraction is accomplished by the balls rolling longitudinally in their respective races. The maker states that by this means the end thrust upon the connecting mechanism is reduced to less than 1 lb. These Detroit joints are designed so that in case of elongation or contraction the first joint



The Detroit Universal Joint

will accommodate itself to the conditions until the thrust upon the compensating springs arrests the fore and aft movement of the propeller shaft, the other joint then taking up the duties of elongation or contraction. No thrust reaches either the axle or transmission other than that engendered by the friction of the balls rolling in their races. The rotating part is driven through a hardened and ground ball, which operates freely in a hardened and ground race, in the rotating member, the center bearing of the ball being ground to closely fit the driving pin.

Machining operations in these joints are all from the broached or tapered holes to insure concentricity, and the grinding operations of the races are from the ground periphery of the flanged section of the body. The length of the trunnion pin bearings in the balls is held to 1-1000 in., and the propeller shaft head is centered by these balls each time the trunnion pin reaches a horizontal position, in other words, twice each revolution.

In this joint the lubricant is retained in the races, and centrifugal force serves to throw it to the points of work. The longitudinal movement of the balls pumps the lubricant through the balls and out at the end of the trunnion pin, so that there is a circulation of the lubricant through and onto the bearing membership between the trunnion pin and ball. A frictionless leather dust cover effectually protects the joints. The balls roll freely on the trunnion pin, so that the ball is constantly presenting a new surface to the trunnion pin.

Drop forgings have been found unnecessary, pressed steel being used in

the body in its place, resulting in a reduction in weight. This body is stamped cold from the flat stock by 17 die and 5 annealing operations. This concern has devised an easily removed tin shipping cap which covers the open end of each body and protects the balls and races from rust or dirt when being shipped to the axle and transmission makers. The flanges are crated separately, thus saving disassembly cost to the manufacturer.

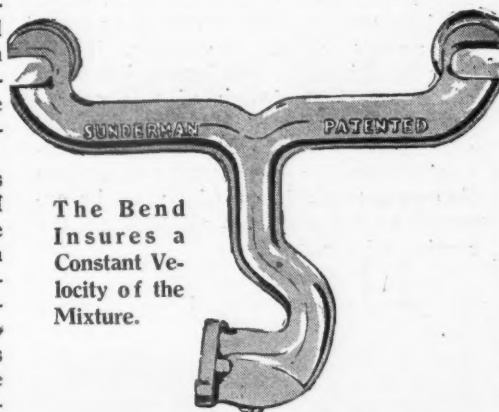


Weatherproof Vest for Truck Operators

This new one-piece vest is made by the Comfort Auto Robe Company, of Waterloo, N. Y. It is of one solid piece of rubberized material, and is just as warm in the back as in the front. It is made to button high at the neck. The retail prices range from \$3.25 to \$5.50.

The Sunderman Manifold for Fords

The manufacturer of Sunderman manifold claims that because of bend in their manifold a uniform vacuum is reserved



The Bend Insures a Constant Velocity of the Mixture.



Bradford Gloves Are Made in a Number of Styles

and a constant velocity of the mixture maintained, with a resultant economy that is worth while. A pocket in the interior of the manifold near the joint catches and holds gasoline that condenses when the motor is shut off, thus furnishing a supply of quickly vaporized gasoline in the manifold that produces quick starting. It can be used with all Ford carburetors. The price is \$2.50. It is manufactured by the Sunderman Corp., 20 Chambers St., Newburgh, N. Y.



Campbell Radiator and Engine Cover

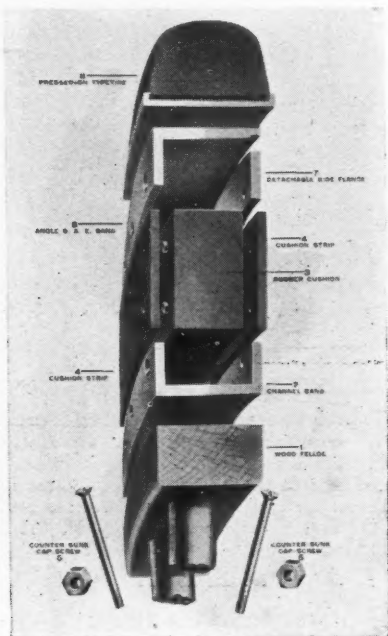
These covers are made of the best grade enamel drill, lined with a kersey material. The asbestos lined covers are made up with a layer of asbestos placed between the drill and the kersey, making the cover air and heatproof. These are made by the Perkins-Campbell Company, 632 Broadway, Cincinnati, Ohio.

Bradford Gloves

The accompanying illustrations show several models of winter gloves that will prove very acceptable to the average chauffeur. They are manufactured by R. E. Bradford, of Gloversville, N. Y. The mitten shown is black, lined with very heavy white wool. Strap on the wrist holds the glove in position and insures it against flapping back and forth or getting limber. The glove shown is of tan with a heavy knitted lining, with a band of sable cone at the top. The gauntlet shown has a soft folding cuff and is made in black with heavy white wool lining. The other type of gauntlet is black, and also has a large soft cuff, is hand lined with double weight knitted lining. The mittens sell for \$6, the gauntlets for \$9 and \$10, respectively, and the glove for \$8.50.

The Morand Cushion Wheel

A recent invention being introduced to the commercial car industry is the Morand Cushion Wheel, marketed and distributed by the Morand Bros. and Martin Cushion Wheel Co., of 800 S. May St., Chicago. The wheel is simply the ordinary wooden wheel, or steel wheel, with a cushioning element interposed between the wooden felloe and the solid tire, as shown in the illustration.



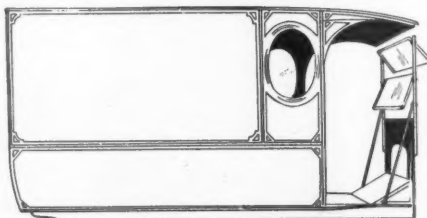
Sectional View of the Morand Cushion Wheel

Referring to the illustration, 1 shows a section of the wood felloe on which is shrunk panel band 2. Rubber cushion, 3, together with the cushion strip, 4, is then inserted in the channel, 2, of the band, where it is bolted transversely, the bolt 5 passing through the channel side and through steel bronze bushings vulcanized in the rubber of the thick radial walls. The wheel with the cushion is then pressed into the outer channel band, 6, which is the S.A.E. band, having one side detached, 7. The bolts then pass through the channel sides and cushion as before, and the entire assembly is ready to receive the pressed-on type of tires. All the bolts have counter-sunk heads, so that the outside of the wheel is perfectly smooth.

The wheel has been designed and perfected by W. C. Martin during past years spent in resilient wheel investigation. It has been tried and tested, and, the manufacturer states, will be found strong and durable, light, resilient and efficient, and at the same time reasonable in price. The maker states the wheel is practically indestructible, and the tires will give 50 per cent more mileage over their guarantee.

Sidney Stevens Commercial Bodies

The Sidney Stevens Implement Co., of Ogden, Utah, is manufacturing a line of bodies for use on Ford cars especially, or any other car in general. The No. 11 Service Built-in Cab Body, shown herewith, has paneled rear doors with the loading space, when for Ford cars, of 5 ft. 3 in., width 3 ft. 5 in. Foot boards and seat cushions included. Windshield and sub-dash are extra. A special design

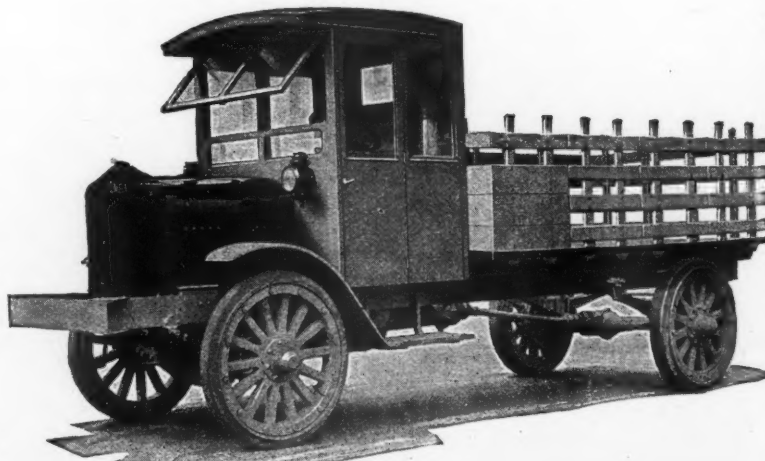


No. 11 Service Built-in Cab Body

body for any make automobile or truck is also made. This company manufactures many designs open and closed type and will manufacture any body according to order or specifications. Some of its specialties are hotel busses, school vans, stages, flat decks, hearses and other bodies for special use. All of its work is nicely finished with good paint and varnishes.

The Everyday Cab

The Highland Body Mfg. Co., of Cincinnati, O., which has been designer and builder of truck bodies for years, has designed a cab for use on commercial cars, for the use of the motor truck manufacturers who realize that the truck, to be efficient, must be kept in operation every day, no matter what the weather. It protects the driver, thereby insures increased efficiency. The design of this cab is rugged, all non-essentials being eliminated. It is of good appearance and certainly offers the highest type of protection to a truck driver who must be exposed to the elements all through the coming winter.



Cab Designed to Protect Driver in Stormy Weather

Stevens Tag File

Stevens & Co., 375 Broadway, New York, has made an interesting little contribution to repair shop efficiency in the form of a "Simplified Accounts" file, which was designed as an aid to repair jobs bookkeeping. This file is intended to be used in connection with Stevens Repair Tags. It has three sections. One for tags on jobs which have been delivered and paid for; another for tags on work delivered, but charged, and the third for holding a supply of new Stevens tags.

With this file the dealer can tell instantly the story on each job delivered—whether it has been paid for or charged. The tags also give complete information regarding repair instructions, the material used and the time consumed by repairmen. Each Stevens tag is



Stevens "Simplified Accounts" File

serially numbered in red, the number being duplicated on the stub, which is the customer's receipt.

The "Simplified Accounts" file is given free with each order for 1000 repair tags. These tags are sold to the dealer at \$4 per thousand.

Motor Trucks Held to be Essential by Priorities Committee

MOTOR trucks have been held by Priorities Division, War Industries Board, to be an essential to the war, even when such trucks are used in civilian industry. This is a remarkable victory for the motor truck industry, and is considered due in great part to the intelligent and disinterested manner in which the situation has been presented to the Government officers by representatives of the industry. Furthermore, the Priorities Division has placed the motor truck manufacturer on his honor to sell his product to such industries as are in the essential class.

It is true that the motor truck has made a place for itself in war work and allied activities, one so well established that it was hardly thought possible any other conclusion could have been reached by the Priorities Division.

The use of the motor truck in return loads bureaus, rural express lines, rural and local mail delivery, relieving the rail lines of congestion, helping to solve the terminal problems, and in other ways, all to the end that the purposes of the war might be aided, have made it clear that a curtailment of its production or operation would mean a blow at war efficiency.

Certain restrictions, of a necessary character, are suggested by the Priorities Division, on the uses of the motor truck, and, tremendous demand for steel being cited, the necessity for giving manufacturers of auto trucks ratings as to steel is pointed out.

Aid in having truck manufacturers placed upon the preference for fuel, under conditions, is offered by the Board. A statement from the War Industries Board, discussing the circular being sent truck manufacturers outlining its conclusions, says:

Edwin B. Parker, priorities commissioner of the War Industrial Board, has prepared for distribution to manufacturers of motor trucks a circular outlining the assistance the board will extend to them in the manufacture of their product.

The circular sets forth that, insofar as motor trucks are used directly or indirectly for war purposes, they are a war essential and their production for such purposes should be facilitated and, further, that, insofar as trucks are employed in essential uses in civilian industry, they constitute an important transportation medium and curtailment for such uses should be avoided as far as possible.

The Priorities Division will receive the application of any manufacturer of motor trucks for a place on the preference list for fuel. In every case it will take into consideration the fuel situation of the manufacturer, the amount of its direct and indirect government business and the uses to which the remainder of its products is being devoted.

Any manufacturer whose plant now is or in future shall be exclusively devoted to manufacturing products being or to be absorbed directly or indirectly by the Government, or other uses of essential importance and whose fuel requirements and output bear proper economical relation to each other, may have such plant placed upon the preference list for fuel upon condition, however, that the manufacturer observe the pledge of cooperation and the rulings of the Priorities Board.

After pointing out the tremendous demand for steel and the necessity for its conservation, the circular states that any manufacturer of auto trucks whose plant now is or in the future shall be exclusively devoted to manufacturing products being or to be absorbed directly or indirectly by the Government, or in other uses of essential importance, may have such plant given a class B-4 rating for its steel requirements, conditioned, however, that such manufacturer shall observe its pledge of cooperation and the ruling of the Priorities Board.

Should any manufacturer of trucks conceive itself under the Priority rules entitled to a higher than class B-4 rating for its steel requirements to complete any particular contract or order, it may present formal application for higher rating, which will receive the consideration of the Priorities Committee.

The manufacturer's pledge of cooperation shall apply to uses of steel already in its possession and of manufactured or partly manufactured trucks in its possession at the time the pledge is made.

The circular states that the demand for iron and steel are such that no guarantee can be made to the motor truck or any other industry that its steel requirements or any portion thereof will be met. However, the members of the motor truck industry, complying in good faith with the pledge of cooperation required, will be accorded the preferential treatment mentioned in procuring their supplies of fuel, iron and steel.

The pledge of cooperation to be given by any manufacturer who desires to be placed on the preference list for its fuel requirements or who desires to be placed in Class B-4 for its steel requirements should be in the form following:

"The undersigned hereby pledges itself (1) to use only in the manufacture of motor trucks or repair parts for motor trucks the steel suitable therefor which is now in its possession or which may hereafter come into its possession; (2) to sell no motor trucks of its manufacture except (a) for essential uses as that term has been or may be defined or applied by the Priorities Division of the War Industries Board, or (b) under permits in writing, signed by or under authority of such Priorities Division; (3) to sell no user an unnecessary number of motor trucks even for essential uses; (4) to discourage the purchase of any motor truck to replace a usable truck already in service and to give maximum encouragement to the repair of trucks; (5) that this pledge shall bind not only the undersigned, but also its branch houses, subsidiaries, dealers, brokers, factors, commission merchants and all other selling agencies; (6) to make no delivery of any motor truck to any one for resale,

either directly or indirectly, until such one has filed with the undersigned its pledge of cooperation in writing; and to make monthly reports as required by the War Industries Board to the Automotive Products Section of said Board or otherwise as said Board may direct."

The manufacturer must also require from anyone to whom he delivers a motor truck for resale a subsidiary pledge in much the same terms.

Each manufacturer must forward during the first fifteen days of each month a sworn report to the Automotive Products Section of the War Industries Board showing the number of motor trucks manufactured in the preceding month, the number delivered to the United States Government and its allies, the number delivered for essential uses (giving details), the number of finished motor trucks on hand, the approximate stock of steel on hand and such other information as may be required. These reports will be held confidential by the Board unless the public interest shall require otherwise.

The creation of new plants or the expansion of existing plants for the manufacture of motor trucks is held to be unnecessary and undesirable inasmuch as existing facilities are ample to produce all the trucks required for essential uses or for which steel can be furnished.

All Army Motor Vehicles Under One Head

By Presidential order plans have been recently completed for the turning over of the newly organized motor transport corps, to be commanded by Col. Charles B. Drake, quartermaster corps, to the new executive who will in time have approximately 5000 men and 200,000 men under his command. The new order abolishes the former Motor Transport Service of the Quartermaster's Corps, which was headed by Col. Fred Glover. The new department is directly responsible to Gen. Peyton C. March, Chief of Staff, and to the General Staff.

The fact that motor trucks are taking on a more vital part in each successive battle on the French front, and that Great Britain and France long ago placed all the motor transport under one head, led the United States to take similar action.

The new corps will include trucks, passenger cars, motorcycles, and even bicycles, and will take in such equipment for every branch of the Army.

The new plan is to bring about a more perfect standardization of equipment and facilitate the interchange of drivers. Repair work at the front will be carried on in garages, parks, depots and reconstruction shops. A service park is a mobile garage, which can be moved rapidly to any point where it is needed.

An overhaul park, also to be used, is a large station where heavy repairs can be made, and a reconstruction park is equipped to completely rebuild broken-down machines.

Sewell Cushion Wheel Co., Detroit, Mich., has been admitted to membership in the Motor and Accessory Manufacturers' Association.

Commercial Car Economy in England

The appearance of the Road Transport Board in Great Britain with full powers to regulate the use and sale of all freight-carrying road vehicles has already been noted in these columns. Since that time meetings of traders and users have been convened in various parts of the country, and various trades have been given the opportunity of placing their ideas before the divisional boards and area committees working under the Transport Board. As a result, the following suggestions have been made by the users: (1) Traders in each town or city should as far as possible confine their deliveries to the area naturally attributed to that town. (2) Deliveries should be arranged on a geographical or trade basis, or a combination of both. (3) Perishable articles should have preference over non-perishable articles in delivery. (4) Customers should be advised to carry home small parcels whenever possible. (5) Where tramways exist schemes should be formulated for their extended use for parcels delivery.

City Engineers Will Test Gasoline

The department of safety engineering of the city of Detroit will test samples of all gasoline offered at retail to automobilists to see that they are up to the standard set by ordinance when sold as "Detroit City Standard Gasoline." Taking of samples daily and making of tests to prevent adulteration will soon become routine, according to John C. McCabe, head of this department. In the ordinance, approved February 20, 1917, gasoline is defined as a liquid hydro-carbon having an end point or boiling temperature not exceeding 450 deg. F. It shall distill at least 20 per cent at 220 deg. F. and 50 per cent at 300 deg. F. The ordinance also provides that there must be a sign fastened to the pump from which the liquid is drawn bearing the legend "Detroit city standard gasoline sold here," or "Mixed G-K (gasoline and kerosene) boiling point, sold here."

If dealers fail to meet the standards set by the ordinance they will be prosecuted, either for violation of the ordinance or under the state law, for misleading advertising.

Traverse City Motor Car Co., Traverse City, Mich., called recently a special meeting of the board of directors of the company. The capital of the company was increased from \$150,000 to \$500,000, and the name of the company was changed to the Napoleon Motors Co. The company has begun the production of 1-ton and 1½-ton trucks. The following officers were elected: W. J. Chase, president; C. E. Culver, vice-president; Frank Trude, chief engineer, and J. W. Oswald, general manager. The directors include these officers, with J. W. Patchin, C. S. May and George H. Curtis.

Class B Trucks Rapidly Being Shipped Overseas

Class "B" trucks are being shipped overseas in a steady stream. The stage in development and production has been reached where the Motor Transport Service of the Quartermaster Corps is producing these trucks in such quantities as to feel justified in sending abroad all that are not vitally needed here, according to a statement issued by the War Department.

The first five of these trucks were completed on January 8, 1918, and since then production has increased rapidly. The production of these trucks to date of August 17, 1918, was as follows: Shipped, 3174; completed and O.K'd, 2404; completed, but not inspected, 747, in process, 637; a total of 6962.

Conservation of Chain as War Measure

Owing to increasing war needs of steel and iron, a campaign of education for the conservation of chain to be carried out with the public has been planned by the war service committee of chain manufacturers.

Conferences between the war service committee and John C. Schmidt, chief of the chain section of the War Industries Board; A. W. Shaw, chairman of the conservation division, and A. J. M. Baker, of the priorities division, were held, and a number of items presented to the committee for examination and consideration were discussed. Questions of requirements for priority which will be sought by the chain manufacturers in the production of essential chain were discussed with Mr. Baker.

Members of the committee are: C. M. Power, of the American Chain Co., New York; Staunton B. Peck, of the Link-Belt Co., Philadelphia, and A. B. Way, of the Bridgeport Chain Co., Bridgeport, Conn.

Intensive Training for Army Mechanics

Colleges, technical schools, city boards of education, and all manner of educational institutions, are working under the direction of the War Department Committee on Education and Special Training, in a course for the instruction of truck drivers and automobile mechanics for the Army. Under the plan the schools will turn out about 30,000 trained men every two months. The schools have received the encouragement and assistance of the trade in general in this work, local automobile agents and their service station experts offering their services as teachers. Experts and specialists from various factories are also conducting classes. The students are given the opportunity of becoming acquainted with the mechanism of the class B truck, one or more of these being supplied to each school.

These schools are training mechanics who will be of inestimable value to the trade after the war is over.

Firestone Enters Balloon Field

At the annual meeting of Firestone superintendents and foremen, at the home of H. S. Firestone, Columbiana, O., Mr. Firestone announced that a large section of the Firestone plant will soon be turning out observation balloons for the Government.

The Chief Commissioner of Police in London has sanctioned the use of twenty omnibuses to run on coal gas. On these cars the gas will be stored in cylinders at 1000 lb. pressure to the sq. in. At the expansion chamber before the mixture reaches the engine, the pressure is reduced to 2 lb. per sq. in. The containers are comparatively light, as they are made practically on the same principle as a wire wound gun.



New Factory Erected by the George D. Bailey Company, Chicago

This new plant at 4500-06 Ravenswood Avenue, has been equipped with the latest type of machinery for the manufacture of ball thrust bearings and the magneto coupling for trucks made by the Bailey Company, at a cost of \$75,000. This company has been in operation a little over a year, and has in that time evidenced a remarkable growth.

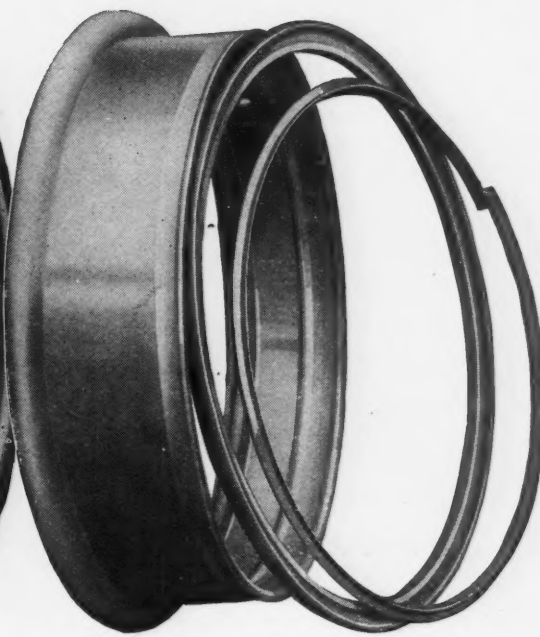
"The Rim that made the Giant practical" —is a One-Man Rim



Giant Pneumatic Truck Tire (40x8) on Firestone "One-Man" Rim.



Rim assembly on wheel



One-piece base, side ring and locking ring

Firestone Demountable Rims For Giant Pneumatic Truck Tires

IT is only a one-man job to change Giant Pneumatic Truck Tires when mounted on these rims.

Motorists by the thousands know the Firestone "Type C" (straight side) Rim, which is in universal use on the highest grade passenger cars built today.

This new Truck Tire Rim has all the exclusive features of construction of the "Type C" Rim. They are:

1. Continuous, one-piece base.
2. Continuous surface contact with felloe.
3. Continuous removable side ring with split locking ring.
4. Rim mounted on wheel with continuous wedge ring, the foundation principle of Firestone Rim success.

Be sure your pneumatic truck tires are mounted on Firestone Rims. Firestone Rims make any tire render better service.

The Firestone Steel Products Company is now producing this rim in quantities.

THE FIRESTONE STEEL PRODUCTS CO.

FIRESTONE PARK, AKRON, OHIO

In the complete Firestone line there's a rim for every type and size of tire, solid and pneumatic.

Trucks to Transport Grain in Montana

The Montana Railroad Commission has recommended to Secretary McAdoo the installation of a fleet of motor trucks to be used in the transportation of grain in that state. Carter county, in southeastern Montana, is 60 miles from a railroad, and the only way that the grain can be brought to market is by team and wagon. If this method of transportation were used the farmers would not have time to prepare their land for next year's crop. The use of motor trucks in carrying this year's bumper crop will greatly simplify the problem.

Goodrich Vice-President Has Red Cross Post

A. B. Jones, second vice-president of the B. F. Goodrich Rubber Co., of Akron, O., has been appointed director of transportation and distribution of Red Cross supplies in France. His task will be the development of closer co-ordination between military and Red Cross distribution. His duties entail not only the transportation and warehousing of supplies, but also the care of thousands of French people who, together with many of their possessions, are moved to and from the danger zone. Mr. Jones, in addition to his executive position with the Goodrich company, was director of plant administration.

Boston Branch of Packard and Dodge in One Building

C. S. Henshaw Co., Dodge Bros. Boston dealer, will, on September 15, join forces with the Packard dealer in Boston, and remove to the Packard building at 1079 Commonwealth Ave. Each company will retain its own sales force, and the businesses will be kept separate. The Henshaw company formerly maintained three buildings in Boston. One of these, the service station on Commonwealth Ave., will be retained. The others will be vacated. The new plan will save the Henshaw company about \$25,000 a year overhead.

Indiana Aids Merchants in Return-Loads Bureau Problems

A pamphlet, entitled "How Indiana Merchants Can Get Goods Quickly from Indianapolis Wholesalers and Manufacturers," has been issued for the benefit of shippers by the return loads bureau of the Indianapolis Chamber of Commerce. It explains clearly the bureau's method of handling return loads and presents the advantages to the shipper of securing a return load. An article in a recent issue of the Indianapolis Trade Journal—"Heart o' Trade"—gives an account of the work accomplished by the bureau and outlines the plans adopted for the quick delivery of merchandise.

Urges Co-operation of American, British and French Motor Men

Albert Brown, of London, who has recently been made president of the Society of Motor Manufacturers and Traders of Great Britain, wrote recently to DeWitt Page, president of the New Departure Mfg. Co., of Bristol, Conn., urging the co-operation of American, British and French business men in working out the many and complex problems involved in after-the-war development. Mr. Brown is one of the founders of the firm of Brown Bros., 22 Great Eastern St., London, E. C. In his letter, he expresses a desire to hear from automobile trade associations in America concerning plans for the furtherment of co-operation in trading.

Basic Price for Aluminum Continued

An agreement between the producers of aluminum and the price-fixing committee of the War Industries Board concerning the continuance of the present basic price of aluminum has been approved by the President. The agreement provides that the maximum base price for aluminum shall be 33 cents per lb., f.o.b. United States producing plants, for 50 tons or over, of ingot of 98 to 99 per cent. Copies of the price list, including differentials for sheet, rod and wire, and differentials for quantity, for grade, and for alloys, which will remain those approved by the price-fixing committee as effective from June 1, 1918, may be obtained upon application to the nonferrous metals section of the War Industries Board. These prices will be effective on deliveries made during the period from September 1, 1918, to March 1, 1919.

Main Electric Mfg. Co., Pittsburgh, Pa., has received an order from the representative of the company at Adelaide, Australia, for 597 Main electric light and power plants for distribution in Australia. This company has found a ready market for its electric light plants in Canada, India and South America, as well as in the United States.

Tractors at Milwaukee Fair

Despite war conditions, one of the biggest automobile shows in the history of the fair was held at Milwaukee, Sept 9 to 14, in connection with Wisconsin's annual "pumpkin" exhibition. This year tractors were shown under the same roof with trucks and passenger cars for the first time. A large assortment of accessories and motor car appliances was also shown.

Twenty-six tractor companies exhibited at the fair. Daily exhibitions were given, and the display was one of the big features of the exposition.

New Dealers' Association in Minnesota

Garage dealers of Little Falls, Royalton, Swanville, Pierz and Randall, Minn., recently formed an organization for their mutual benefit. They agreed to adopt the closing regulations suggested by the National Automobile Dealers' Association, and will close every evening except Saturday at 6 o'clock. They decided to keep open until 10 o'clock on Saturday evening, because it is often impossible for farmers to come in before 6 o'clock at this time of the year. George Schroeder is president of the association, and Raymond Brick, secretary and treasurer.

Recent Contracts Awarded to Motor Car Companies

Among the contracts awarded recently by the Government are: One to the Winton Motor Car Co., Cleveland, for engines and spares; Cleveland Tractor Co., Cleveland, for ten tractors; Disco Mfg. Co., Detroit, for 3000 gun synchronizing generators; Firestone Tire & Rubber Co., Akron, O., for balloons, and Willys-Overland Co., Toledo, for engines.

Why I Like to Drive an Atterbury— Atterbury Motor Car Co., Buffalo, N. Y. An attractive folder with an unusual method of presenting a selling argument. This booklet contains full specifications, together with views of special features of the Atterbury truck.

French Artillery Going to Aid of British on Somme Front

A specially made trailer on which the gun is mounted is towed by a truck from one part of the battlefield to another



ROSS GEARS

THE manufacturers of one hundred and fifteen different motor trucks, representing *considerably over half the industry*, are now using Ross Steering Gears as standard equipment. In this number are many of the largest and best known makers in the country. However, whether his output is 10,000 or only 100 trucks a year, the manufacturer who appreciates and buys the added *safety, reliability and easy steering* that Ross Gears guarantee, is undoubtedly putting the same superior quality into every manufacturing detail of his truck. Every man who buys a truck and every manufacturer owes it to himself to investigate and to demand the superior service of "the steering gears that predominate on motor trucks."

*Write for catalog and
other information*

ROSS GEAR & TOOL COMPANY
760 Heath Street
Lafayette
Indiana



The Steering Gears that Predominate on Motor Trucks

Rural Motor Express Lines Helped Farmers in Crisis

FARMERS within a radius of thirty miles of Dayton, O., recently had a demonstration of the value of rural motor express lines when they ran short of binder twine just when their wheat crops ripened and immediate cutting was imperative. Most of the farmers in that section get their twine from the plant at Miamisburg, and orders have been so overwhelming at that establishment that its output is practically cleaned up from day to day. When the crisis developed in the southwestern Ohio situation, the Miamisburg company promised the farmers a carload, and this was sent to Dayton June 18, where rural motor express trucks from all over that section awaited it. The supply was pro-rated among the trucks under the direction of the traffic department of the Greater Dayton Association, with the result that farmers along all the rural motor express lines received their binder twine that afternoon and were enabled to proceed with their harvesting. A better concrete example of the usefulness of the motor express to farm communities could hardly be devised.

Other carloads of twine were distributed this same way later, keeping the farmers supplied as their needs developed.

Dayton has become quite a center for rural motor express lines, new ones being added rapidly as the success of the older ones becomes apparent.

One of the pioneers in the field is the Dixie Express Co., managed by J. E. Wilson, operating a line of trucks in daily service between Dayton, Hamilton and Cincinnati. This originally started as a film express, the trucks gathering up moving picture films in Dayton and Cincinnati after each night's performance, and transferring them to the smaller villages along the route and to the city at the opposite end of the line.

Other business naturally flowed toward this line, until now a general express business between the two cities and the smaller places along the route is carried on. Much farm produce is now being brought into the big centers.

The Cincinnati & Dayton Transfer Co. operates daily trucks between the two cities, as does the Peter Hughes Express Co., of Cincinnati, the latter operating its Dayton pick-up and delivery through the C. & D. Transfer Co. This line operates 3½-ton Schacht trucks Mondays, Wednesdays and Fridays, both ways. Business has developed so that full loads are invariably taken to Dayton, with almost as much traffic in the other direction.

The Intercity Express Co. operates trucks every other day between Dayton and Cincinnati, and the Miami Transfer Co. and the Keystone Hauling Co. specialize on this route whenever business justifies sending a truck either way.

Between Dayton and Xenia Jesse Gilbert conducts a motor truck express every day, coming into Dayton in the morning and returning at night, serving the farmers along the route and handling intercity business, also.

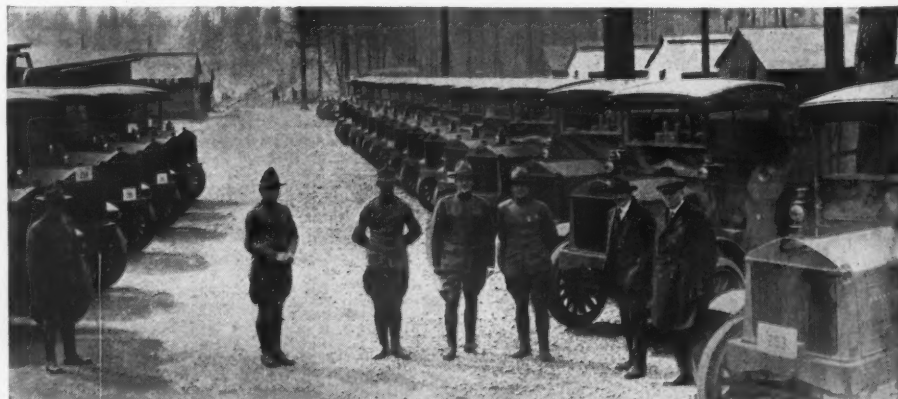
Between Dayton and Miamisburg two motor express lines are now in operation, John Stoner handling one line and A. B. Robinette the other. The distance is about ten miles, and daily round trips are made.

Dayton and Springfield, about 25 miles apart, are connected by daily rural motor express service, and Dayton and Germantown are likewise served.

One of the principal routes covered is the daily service by motor truck taking in Dayton, Piqua, Tippicanoe City and Troy, the Lincoln Express Co. handling this route.

Routes from Dayton to New Carlisle, a distance of twenty miles, and to Middletown, are also in daily service, and, taken as a whole, the rural motor express service into Dayton is fairly complete to date. That it will be extended to a wider radius as fast as farmers and dwellers in the smaller cities realize its convenience is certain, especially as the new freight rates, which will doubtless be followed by a rise in electric express rates, more nearly approximate the present charges on the rural motor express lines.

Correction: In the trailer story on page 25 of the August issue of the Commercial Car Journal it was stated that the Supplee-Wills-Jones Co., T. William Roberts, of Bala, used Troy trailers, whereas it should have read Warner trailers. A Warner trailer was also used to haul the 65-ft. angle iron weighing 9800 lb. from 20th & Hamilton Sts. to 13th & Locust.



Standards in the Northwest

Government uses of motor trucks are many and varied; not least among them is that of taking out lumber from the great spruce forests in the Northwest and conveying it to the ship builders. The illustration shows a fleet of Standards engaged in this work. According to reports they are, indeed, making good in this virgin forest of Washington, where much of the spruce cutting is being carried on. In addition to this use almost every cantonment now has its quota of Standards.

Bodies Convertibility and Shipping Space

FROM OUR LONDON CORRESPONDENT

A development of which we shall hear a great deal after the war is to be found in the sectional form of body made especially for shipping and export. The Booth commercial body, which is being constructed by Hoods & Bodies, Ltd., Canonbury, London, N., offers the additional advantage of convertibility, as the back part of one type can be easily interchanged with that of another type.

The illustrations show a complete van or panel body constructed on the Booth principle, the same body in sections ready for packing. Obviously this principle offers an enormous saving, particularly in the case of van bodies, which, as a matter of fact, in pre-war days were seldom exported owing to the very large space they occupied, and the consequent heavy freight charges. It may be added that the Booth body is the result of several years' experience and study, and is not a freak but a practical achievement.

Committee to Investigate Durability of Metals

A committee whose chief duty will be the investigation of the fatigue phenomena of metals has been appointed by the National Research Council, acting as the Department of Science and Research of the Council of National Defense. Experimentation for the purpose of determining the strength and durability of metals subjected to repeated stresses will be conducted under the supervision of Professor H. F. Moore, of the Engineering Experiment Station of the University of Illinois, who is chairman of the committee. It is probable that the experiments will be conducted in the laboratories of the University of Illinois.

Klaxon Co. has purchased a large tract of land at Newark, N. J., and will erect there additions to its plant and work houses.



**Guaranteed
For Life of Truck**

Smith Wheels

"Everlasting"

Save more than their
Original Cost
in Tires and Gasoline
each year they are run

Demand Smith Wheels



From Rye to Barley

Wheaton, Ill., is the county seat of Dupage County. It is also the country seat of the Chicago Golf Club. Before the war the club members knew something about rye; but few of them knew anything about barley.

However, they were all patriotic, and early last spring called in some of their farmer neighbors to learn how they could best "do their bit."

"Plow up the golf course," advised the farmers.

"All right; you do it for us," said the golfers.

Barley, not rye, was planted, and A. W. Cutten, a Chicago Board of Trade man, who owns a farm nearby, bought the entire crop produced on the 236 acres.

The other day when the grain was ripe he wished to haul it to the elevator, but all his teams were busy on his farm.

An obstacle, to the hard headed farmer-board-of-trade man, is something to be overcome, so he hunted up his friend, E. H. Holstein, who sells trucks, and bought one.

It is a one-ton commercial car, but carries thirty sacks of barley from the farm to the elevator on each load, and that is about two tons' weight.

It is, therefore, demonstrated that the war has not only turned the minds of the club members from rye to barley, but has also sold one more commercial truck.

Price of Copper Approved by President

The maximum price of 26 cents per lb. for copper has been approved by the President.

All shipments made after November 1, 1918, are subject to any change in price made by the Price Fixing Committee to take effect after that date. This maximum price is subject to the additional charges on copper shapes approved by the Price Fixing Committee on June 5, 1918.

The following conditions have been imposed: First, that the producers of copper will not reduce the wages now being paid; second, that they will sell to the United States Government, to the public of the United States, and to the Allied Governments at not above the maximum price; third, that they will take the necessary measures, under the direction of the War Industries Board, in the distribution of copper to prevent it from falling into the hands of speculators, who might increase the price to the public, and, fourth, that they will pledge themselves to exert every effort necessary to keep up the production of copper so as to insure an adequate supply so long as the war lasts.

Shaw, Welsh & Co., Galesburg, Ill., is operating a gray iron foundry, and announces that it is prepared to handle two or three tons of light or medium sized gray iron castings.

Trucks Deliver Farm Products to Curb Market

A plan to aid the small farmer who raises about 10 acres of garden truck, but has no means of reaching the consumer, has been outlined by Federal Food Administration representatives in Philadelphia. Investigations concerning the feasibility of placing in operation a large fleet of motor trucks for this purpose are going forward. According to the plan, farmers within a radius of 25 miles of Philadelphia will deposit their foodstuffs at points agreed upon with the Food Administration. Motor trucks will pick up these loads and carry them to the curb market. The first of these markets has been established on North College Ave., just outside the Girard College grounds. It will be conducted on Tuesdays, Thursdays and Saturdays. It is intended to open two more curb markets in the near future.

Motor Truck Club of America Changes Its Name

Believing that there has been a good deal of misunderstanding as to the nature of its objects and its methods of attaining them because of the use of the word "Club," the Motor Truck Club of America has changed its name to that of the Motor Truck Association of America, this step being taken at a meeting called August 27. It is believed that the change makes for the elimination of misunderstanding and for greater efficiency in the prosecution of important and beneficial efforts of the men whose business is of such moment as transportation over the highways.

Auto School Wants Books

Rahe's Auto & Tractor School, North Kansas City, Mo., which is training enlisted men for the motor section of the Army, is desirous of securing copies of new publications of interest to its students. Instruction books, covering trucks, tractors, passenger cars, carburetors, ignition, apparatus, etc., are especially desirable. The school also wishes to secure a complete set of parts catalogues, covering the various models of trucks, tractors and passenger cars built during the last five years.

Automotive Exhibit for Montreal

An automotive exhibition for eastern Canada is being planned by interests in and out of the automotive trade in Montreal. An automotive show has been held at Montreal each year since the beginning of the war, but it was voted a short time ago to discontinue the exhibit until after the war. The board of directors of the Montreal Automobile Association is lending its endorsement to the plan, and it is proposed to donate the proceeds to the Montreal Soldiers' Wives' League.

Wheel Makers Organize

Representatives of twelve manufacturers, including practically all the makers of metal wheels and some makers of wood wheels, met recently for the purpose of forming an organization. A committee of three has been appointed to draft plans and present a report at the next meeting. It is expected that the association will effect more thorough co-operation with the Government. Another object is the promotion of research in connection with wheel manufacture. Many problems relating to standardization will also be considered by the association, in order that closer co-operation with the Society of Automotive Engineers may be attained.

Detroit-Toledo Truck Line Soon in Operation

H. C. Roberts Storage & Transfer Co. will put in operation October 1 a freight and express service between Detroit and Toledo. Freight will be carried to and from all cities and towns en route via Rockwood and Monroe. There will be daily service both ways.

St. Louis Dealers to Hold Truck and Tractor Show

Truck, tractor and trailer dealers of St. Louis will probably hold a big show early this fall. The show will probably be held under a tent. The show has the indorsement of the members of the commercial car and service associations who believe that the show would be a great help to business under present conditions and should be one of the biggest essential industry automobile exhibits of the year.

Trucks in Overseas Service

A report issued recently by the War Department states that there are overseas 4308 trucks of less than 1-ton capacity, 5703 1½-ton trucks, 7987 3- to 5-ton trucks and 3420 passenger cars. During August it was planned to deliver 4355 motor trucks and during September 4448.

Hupp Will Make Trucks

Hupp Motor Car Corp., Detroit, Mich., is producing a 1000-lb. truck. The model is of standardized design and mounted on the Hupmobile chassis. The body is convertible into various types.

"How to Increase Tire Mileage"—Firestone Tire & Rubber Co., Akron, O. A timely treatise on the care of tires, which should be of interest to every tire user. It considers the questions of tire selection, application and care from every angle, and offers many useful suggestions for prolonging the life of the tire.

A Driver's Analysis of the Atterbury Motor Truck



TAKE IT from me, old top, the guy that designed this here Atterbury Truck must'a driven one hisself—

"It sure is pretty soft

for me driving this boat—

"I've driven all kinds and shapes, and there's no truck made that takes the bumps like my Atterbury.

"Those big springs are one reason, and another is the great big seat—big enough for a couple of 300-pounders.

"And, say, just hop in and put your feet on them pedals. Notice the size of 'em? I can always find 'em quick, even in the dark—and it's saved me many a bust-up.

"And power? Oh, boy! Put a full truck load on, and I'll take any hill in this burg on high. And that's more than a lot of them can say; and I can back it up—Get me?

"She picks up fast, too—and it's mighty seldom I have to shift gears, even with a big load on. I've got 4 speeds to play with—Class?

"Another thing: Suppose you want to shift gears real fast—there's a patent lock to keep you from going into reverse when you want to go ahead. You know how that helps, especially when you've got your eye on traffic.

"I'm strong for that right-hand steering gear, too.

"Carburetor trouble? Say, I don't know its name. And even if it should go wrong, it's so simple any kid can fix it.

"Simple—that's a good word for the Atterbury. Everything's right where you can get at it quick. Take the gas tank, for instance. And you don't have to take a week off and get your hair full of oil finding the grease cups.

"And what little tinkering you do have to do—like brake adjustments—ain't really work—it's play.

"You never saw such a truck to take punishment without laying down. The service stations could all close up and I'd never know it. I guess that's because whoever designed this bus, figured on making it about twice as strong as it ever needed to be.

"Mind, I'm not saying I'd quit my job if they ever changed trucks, but they'd have to show me."

Dealers may get some interesting information from the Atterbury Motor Car Co., Buffalo, N. Y.

Metal and Rubber Markets

A meeting of a special sub-committee of the steel manufacturers with the Director of Steel Supply, held in Washington on August 23, revealed the fact that the government war plan will call for upwards of 23,000,000 tons of steel during the last half of the current year. At the present rate of production the rolling mills are capable of producing only 17,000,000 tons during that period. The difficulty of furnishing steel involves not only the enlarging of the steel plants, but an increase in the tonnage of ore, of coal, and of coke, so that the necessary iron will be produced. A survey of steel stocks held by manufacturing consumers in the United States is now under way. It will involve a collection of data from more than 40,000 manufacturers, and is expected to be of use to the Government in the matter of steel conservation. The present agreement as to steel prices expires October 1, and there is a possibility that they may be revised. It is known that the Government is opposed to any changes from the present schedule, but producers have some arguments in their favor.

Steel Products Prices

Bessemer billets, p. ton, Pitts'g. \$47 50 a
Open hearth, per ton, Pittsburg 47 50 a
Forging billets, per ton, Pitts'g. 60 00 a
Sheet bars, per ton, Pittsburg.. 51 00 a

Sheets

The following prices are for 100-bundle lots and over f.o.b. mill:

Blue Annealed Sheets—

Nos. 3 to 8.....\$4 20 a
Nos. 9 and 10..... 4 25 a
Nos. 11 and 12..... 4 30 a

No. 17 and lighter gauges are based on \$5 50 a 7 50 per 100 lb. for No. 28 Bessemer black sheets.

Box Annealed Sheets, Cold Rolled—

Nos. 17 to 21.....\$4 80 a
Nos. 22 and 24..... 4 85 a
Nos. 25 and 26..... 4 90 a

Galvanized Sheets of Black Sheet Gauge—

Nos. 10 and 11.....\$5 25 a
Nos. 12 to 14..... 5 35 a
Nos. 15 and 16..... 5 50 a
Nos. 17 to 21..... 5 65 a
Nos. 22 to 24..... 5 80 a
Nos. 25 and 26..... 5 95 a

Tin—Mill Black Plate—

Nos. 17 to 21.....\$4 85 a
Nos. 22 to 24..... 4 90 a
Nos. 25 to 27..... 4 95 a
Nos. 15 and 16..... 4 80 a

Steel at Pittsburgh

Bessemer iron\$37 25 a
Bessemer steel, f.o.b. Pittsburg 47 50 a
Skelp, grooved steel 2 90 a
Skelp, sheared steel 3 25 a
Ferromanganese (70 per cent) 250 00 a
Steel, melting scrap 26 25 a 26 50
Steel bars 2 90 a
Manganese ore, per unit 1 00 a

Price of Finished Products

With the price of copper fixed the market for all brass products is firmer, but manufacturers do not quote except on specification, and the following prices for brass and bronze items are nominal:
Sheet zinc\$15 00a
Sheet aluminum, 18 ga. & heavier 42 00a
Copper sheets, hot rolled 36 00a37 50
Copper sheets, cold rolled 37 00a38 50

Copper bottoms	44 00a45 50
Copper rods	36 00a37 00
Copper wire	29 25a
High brass wire	28 75a29 50
High brass sheets	28 75a29 50
High brass rods	26 75a28 75
Low brass sheets	32 50a34 50
Low brass wire	32 50a34 50
Low brass rods	33 25a35 25
Brazed tubing, brass	37 00a39 00
Brazed tubing, bronze	42 50a44 50
Seamless tubing, brass	37 50a39 50
Seamless tubing, copper	41 00a43 00
Seamless tubing, bronze	45 00a46 00

ALUMINUM.—A base price for aluminum of 33 cents a pound f.o.b. producing plant for 50 tons and over for ingots of 98 to 99 per cent has been established by the War Industries Board. The price became effective June 1.

TUNGSTEN.—The market has been rather active and most American producers are well sold out. Recent business has been principally in foreign ores.

Scheelite is offered in limited quantities from the West at \$25.50 for high grade. Wolframite is quoted at \$24.50 for high grade with off grades at \$20 to \$25. South American imports have fallen off, but Chinese imports increased.

Prices of Old Metals

The following prices are current for old metals:

Copper	Cents per lb.
Heavy cut and crucible	23.50 a 24.00
Heavy and wire	23.00 a 22.50
Light and bottoms	20.50 a 21.00
Heavy machinery comp.....	23.00 a 23.50
Brass, heavy	14.00 a 14.50
Brass, light	12.00 a 12.50
No. 1 clean brass turnings.....	13.50 a 14.00
No. 1 comp. turnings	20.00 a 21.00
Lead, heavy	7.50 a 7.75
Zinc scrap	6.75 a 7.00

The buying prices are those which the larger dealers will pay; the selling prices are market quotations.

Rubber Market Quiet

No further developments are noticeable in the rubber situation. Consumers seem disposed to purchase little more than enough for current needs. The market remains steady.

Para—Up-river, fine, per lb.....	68 a ..
Up-river, coarse	40 a ..
Island, fine	59 a ..
Island, coarse	27 a ..
Caucho, ball, upper	40 a ..
Caucho ball, lower	36 a ..
Cameta	28 a ..
Ceylon—First latex, pale crepe...	63 a ..
Brown, crepe, thin, clean.....	60 a ..
Smoked, ribbed, sheets	62 a ..
Centrals—Corinto .....	.. a 39
Esmeralda .....	.. a 39
Guayule, wet	35 a ..
Guayule, washed and dried..	48 a ..
Balata, sheets	*90 a ..
Balata, block, Ciudad .....	.. a 75
Balata, block, Panama	59 a 60
Mexican—Scrap	39 a ..
Slab	32 a ..
African—Massai red	55 a ..
Mosambique—Spindles	59 a ..

SCRAP RUBBER.—There is no change in the market situation with prices remaining on a nominal basis:

Tires—Automobile	5½a 5½
Inner tubes, No. 1.....	21 a 22
Inner tubes, No. 2.....	10½a 11

*Nominal.

Ford Will Make Four Hundred Trucks a Day

Ford Motor Co., Detroit, is now making 400 trucks and 350 passenger cars a day. This is in accord with government desires. The company had on its books June 10 unfilled orders calling for 5234 trucks. The price of the Ford 1-ton worm-driven truck has been reduced \$50, from \$600 to \$550.

U. S. Light & Heat Corp., Niagara Falls, N. Y., held recently its annual meeting of stockholders. The following directors were elected for the coming year: Ralph C. Caples, Egbert H. Gold, Edwin K. Gordon, James E. Kepperly, Chauncey L. Lane, C. O. Mininger, James O. Moore, B. J. O'Reilly, James A. Roberts, George G. Shepard and J. Allan Smith.

The following officers were also elected at this meeting: Egbert H. Gold, chairman; J. Allan Smith, president; Chauncey L. Lane, vice-president and general manager; B. J. O'Reilly, treasurer; R. H. Van Nest, secretary; T. G. Swannie, assistant secretary-treasurer.

Continental Auto Parts Co., Knights-town, Ind., has recently increased its capital stock from \$10,000 to \$50,000, and is now making extensive additions to its plant and installing machinery and equipment in order to take care of government contracts. Production of the Continental motor stand has been greatly increased.

Field Mfg. Co., Owosso, Mich., is building truck bodies on which will be mounted machine shops for repairing airplanes in France. The company has an order from the Government for 450 of these bodies, and is turning out 10 or 12 a day. The work is being carried on under government supervision.

Traction Engine Co., Boyne City, Mich., is erecting a factory building, 65 by 130 ft., with an area of approximately 8500 sq. ft. The building will be completed in about 30 days. This company manufactures kerosene-gasoline engines for trucks and tractors.

Milwaukee Steel Foundry Co., Milwaukee, Wis., is making improvements to its plant which will cost the company about \$125,000. An electric steel casting plant will be added to the factory group, and also a pattern shop and an office building.

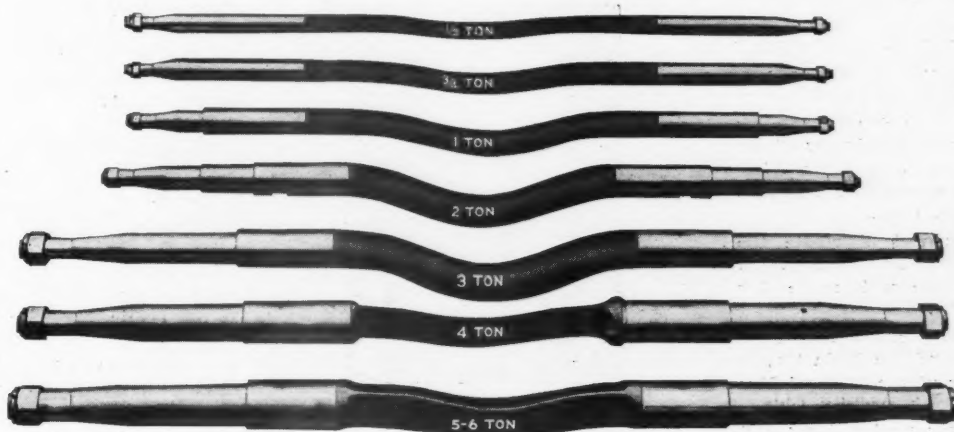
Sewell Cushion Wheel Co., Detroit, Mich., at a recent meeting of the board of directors, declared a 7 per cent dividend on both the common and preferred stock.

C. R. Wilson Body Co., Detroit, Mich., is erecting a three-story addition to its plant at Clay Ave. and the Grand Trunk Railroad.

Warner Gear Co., Muncie, Ind., has begun the erection of a new plant, which will cost approximately \$250,000.



In all models of Clark Internal-Gear Drive Axles is found a *one-piece*, solid, forged load-carrying member, made from nickel chrome steel, heat-treated with spindles integral.



Illustrating the Load-Carrying Axle—7 Models

Clark Axles are made in 7 models— $\frac{1}{2}$ ton to 5-6 ton capacity. A model for every load capacity of motor truck and commercial car. All are of the same mechanical principle, but vary in size only to fit different haulage conditions.

DEALERS: Write us for interesting and informative literature

CLARK EQUIPMENT COMPANY
BUCHANAN ————— MICHIGAN

Personal Items

O. H. Brauer is now assistant engineer of the Midland Motor Truck Co., Harvey, Ill.

Fred R. Hewitt, formerly with the Bethlehem branch of the Packard Motor Car Co., is now with the B. L. P. Motor Co., of Philadelphia, agent for Denby trucks.

D. W. Feggis has resigned the office of president of the Smith Motor Truck Co., Chicago, Ill.

John Squires, chief engineer of the Signal Motor Truck Co., has resigned and intends to conduct a business of his own.

T. P. C. Forbes has recently been made assistant sales manager of the Fulton Motor Truck Co., Farmingdale, L. I.

A. L. Levin has recently been made production and sales manager of the Famous Trucks, Inc., St. Joseph, Mich.

H. B. Willower, sales manager of the Gramm-Bernstein Motor Truck Co., Lima, Ohio, died recently at his home.

P. C. Christman has retired from the Gill Piston Ring Co., as treasurer and general manager. **L. H. Phelps** will succeed him.

Glenn A. Sanford has been made sales manager of the rim division of the Jaxon Steel Products Co., Jackson, Mich.

W. B. Burgess has joined the Midland Motor Truck Co., Harvey, Ill., as assistant production manager.

L. F. Collins is now truck sales manager of the Nash Motors Co., Kenosha, Wis.

C. O. Powell has been appointed advertising manager of the Buda Co., Harvey, Ill.

Ralph J. Handy, former distributor of the Tonford truck attachments in Detroit, has been appointed sales manager of the Lauton Truck Co., Youngstown, Ohio.

William F. Edwards will distribute the products of the Goodrich-Lenhart Mfg. Co. in western territory. He will make his headquarters at Chicago.

O. H. Brauer, formerly connected with the engineering department of the Buda Co., is now assistant engineer of the Midland Motor Car & Truck Co., Oklahoma City, Okla.

E. M. McLean, formerly advertising and sales manager of the Stegeman Motor Car Co., has recently joined the Onelda Motor Truck Co., Green Bay, Wis., where he will be connected with the office of the director of sales.

C. B. Meyers has been appointed manager of the sales promotion department of the United States Motor Truck Co., Covington, Ky.

A. F. McCormick is now purchasing agent of the Service Motor Truck Co., Wabash, Ind. He was formerly purchasing agent for the Kissel Motor Car Co.

George Henrici, for many years with the Kansas City branch of the Emerson-Brantingham Co., has joined the sales department of the General Motors Truck Co., Pontiac, Mich.

C. H. Packer, formerly district sales manager for the Dearborn Truck Co., has been appointed assistant sales and advertising manager of the Service Motor Truck Co., Wabash, Ind.

Emlen S. Hare has been elected to a vice-presidency in the Packard Motor Car Co., Detroit, Mich. He will retain his position as president of the Packard branch in New York.

Bert B. Fornaciari, formerly secretary of the Harvey Motor Truck Co., has recently been appointed production manager and chief engineer of the Midland Motor Car & Truck Co., Oklahoma City, Okla.

D. P. Cartwright has been appointed manager of the New York branch of the North East Electric Co., of Rochester, N. Y. He succeeds **R. J. Hardacker**, who will assume the management of the Chicago branch.



Wm. S. Wolfe

Assistant chief experimental engineer of the Goodyear Tire & Rubber Co., Akron, Ohio, now with the Motor Transport Corps, at Washington.

Removals and Trade Changes

Twin Fire Spark Plug Co. is now located at 720 Grand Blvd., Detroit.

Manly Motor Corp., Waukegan, Ill., is now the O'Connell-Manly Truck Co.

Stegeman Motor Car Co., Milwaukee, Wis., will in future be known as the Parker Motor Truck Co.

New Haven Truck & Auto Works, New Haven, Conn., manufacturer of the Moeller truck, has discontinued business.

Power Truck & Tractor Co., Detroit, Mich., has removed its offices from the Book Bldg. to the company's plant at Beard & Goldsmith Sts.

Puritan Machine Co., Detroit, Mich., has recently purchased the entire stock of parts for the Broc Electric, formerly made in Saginaw, Mich.

Avery Co., Peoria, Ill., has absorbed the Davis Mfg. Co., of Milwaukee, Wis. The Davis company made engines for Avery tractors and power farm machinery.

Puritan Machine Co., Detroit, Mich., has purchased the repair parts business of the Argo Electric Co., formerly of Saginaw, Mich. The entire stock of parts has been removed to Detroit.

Madison Motors Corp., Madison, Wis., has been merged with the Bull Tractor Co., Minneapolis, Minn., and the capital stock of the company is \$2,700,000, of which \$1,500,000 is preferred and \$1,200,000 is common. **Cecil Gibson** is president of the company; **L. A. Brown**, treasurer. **John F. Green** and **Frederick N. Judson**, former controllers of the Bull Tractor Company, are members of the board of directors.

Way-Cleanse Co., Sandusky, O., has recently taken a record of two of its machines which have been in operation in St. Louis, Mo., for the past two years. During this time the machines have cleaned 5480 miles of 30-ft. pavement. The actual number of miles traveled by these machines in cleaning the downtown section of the city was 21,920, which would be equal to cleaning the territory between New York and Chicago 21 times, sweeping a pavement 8 ft. wide.



John P. Franck

Formerly with the Cleveland Varnish Co., now sales manager of the Guide Motor Lamp Mfg. Co., Cleveland, Ohio.



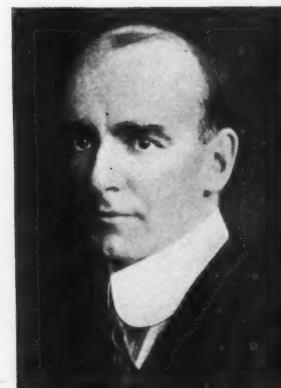
R. M. Taylor

Who has recently been appointed purchasing agent of the Traffic Motor Truck Co., St. Louis, Mo.



W. J. Slater

Who has been made general sales manager of the Williams Foundry & Machine Co., Akron, Ohio.



George C. McMullen

Who has been made western representative of the Timken Roller Bearing Co., Canton, Ohio.



TO PREVENT a coal famine 720,000,000 tons must be mined and delivered to consumers before winter—60,000,000 tons a month.

*"There is now a Fisk Tire
for every motor vehicle that rolls"*

MOTOR TRUCKS can do their part to prevent a coal famine by making quick deliveries from the yards to householders.

TRUCKS cannot afford to lose time. Every minute and every mile counts.

GOOD TIRES prevent delays—

DEPENDABLE TIRES are built to wear, and meet the rugged conditions encountered in actual use.

FISK SOLID TIRES are dependable. When you need truck tires—buy FISK.

FISK SOLID TIRES

To Tire Dealers: Write at once to The Fisk Rubber Company of N. Y., Chicopee Falls, Mass., Dept. K, and get full information about Fisk Solids and the liberal Fisk Dealer proposition

New Agencies

Hawkins-Russell Co., Atlanta, Ga., will distribute Acason trucks in that territory.

The Motor Co., Omaha, Neb., has secured the agency for the Smith Form-A-Truck in that territory.

J. W. Wix, Winston-Salem, N. C., has secured the agency for Republic trucks in that territory.

Bolton Auto Co., Saginaw, Mich., has secured the agency for Republic trucks in Saginaw and surrounding counties.

Hinkel Motor Truck Corp., 6519-21 Carnegie Ave., Cleveland, Ohio, will handle Kelly-Springfield motor trucks in Cleveland territory.

Welling Motor Co., 5033 Delmar Blvd., St. Louis, Mo., will distribute Crow-Elkhart motor cars in southern Illinois and eastern Missouri.

Onelda Motor Truck Co., Newark, N. J., has opened salesrooms at 254-56 Central Ave., and will distribute Onelda trucks in New Jersey territory.

Joe B. Johnson, Tampa, Fla., has contracted for the distribution of the line of 1 and 2-ton truck units manufactured by the Dearborn Truck Co., of Chicago, Ill.

Hawley, King & Co., San Francisco, Cal., has been appointed Pacific Coast distributor of United States trucks by the United States Motor Truck Co., Cincinnati, Ohio.

McGinnis Bros. Co., Baltimore, Md., has been appointed distributor of Columbia trucks and trailers by the Columbia Motor Truck and Trailer Co., Pontiac, Mich.

Kaufmann-Morris Co., Inc., New York City, will distribute Titan trucks in New York State, New Jersey, Maryland, Virginia and parts of Connecticut and territory adjacent to Philadelphia.

R. V. Law Co., Indianapolis, Ind., agent for the Hudson car, has been appointed distributor for the Lalley Electro-Lighting Corp. An intensive agency campaign is already under way.

Spengler Garage & Motor Car Co., Altoona, Pa., has been appointed distributor in nine counties in central and southern Pennsylvania by the Conestoga Motor Truck Co., Lancaster, Pa.

Thomas J. Hay, Inc., Chicago, Ill., has taken over the Kelly-Springfield Chicago branch at 2815 Wabash Ave., and will distribute Kelly trucks in that territory, which includes parts of Illinois, Iowa, Wisconsin, Michigan and Indiana.

Firestone Tire & Rubber Co., Akron, O., announces that it has completed plans for insuring its employees. Over 12,000 employees will be benefited under this plan, which provides for executives and workmen alike, according to the length of their service with the company. The insurance is cumulative and increases in amount for each year of service with the company up to the fifth year, after which the employee enjoys the maximum benefit of \$1000.

Famous Trucks, Inc., St. Joseph, Mich., announces that it is now marketing a 3/4-ton truck, at \$725; a 1-ton truck, at \$950; a 1 1/2-ton truck, at \$1190, and a 2 1/2-ton, at \$1825; all f.o.b. New York. The trucks are equipped with Celfor axles.

Colorado to Gulf Highway Completed

With the definite completion of its alignment through to the Gulf of Mexico, the Colorado-to-Gulf Highway adds another road to the interstate highway system of the country. Steps will be taken immediately to mark the highway from Galveston, Tex., its entire length of 1200 miles to Denver.

The first Federal aid project in the state of Colorado, involving hard-surface construction, is now in progress just south of Denver. It is expected that this highway will be completed within the year, and will give the state ten miles of concrete highway, to which further mileage will be added from year to year, as state, federal and county funds justify.

Commercial Cars in Great Britain are at a premium, and it is practically impossible to get new vehicles unless for important government work. Consequently, there is a great demand for second-hand vehicles, and costs have reached absurd figures. Second-hand cars are fetching as much as \$7,000, which is far more than the price of a new car.

The Horses Order was put in force in Great Britain on July 25. Among other things, this forbids the running of any public vehicle carrying more than six persons, including the driver, except on already accustomed routes, for business, or emergency, or the carriage of mails.

Buda Engine Era—Buda Co., Harvey, Ill. The initial number of this house organ contains an article on the lubrication of engines, an article on the lubrication of tractor engines and an article on the care and operation of engines in general. The magazine presents a very attractive appearance and should prove of interest to the trade.

Henry Ford & Son, Detroit, will begin work January 1 on a new tractor plant. The plant will be located on Green Island in the Hudson River, near Albany. About 15,000 men will be employed in building tractors there.

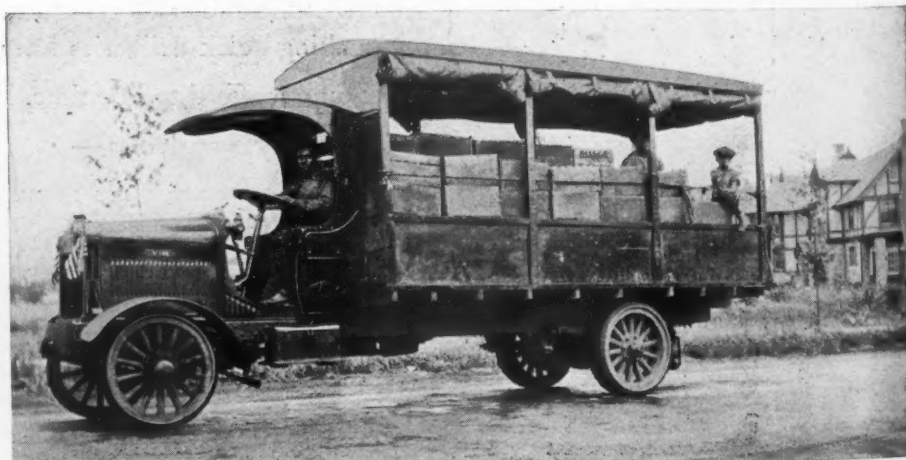
Birmingham Dealers Organize—A meeting attended by representatives of practically every agency and accessories establishment in the city of Birmingham was held recently, and the Birmingham Motor Trades Association was formed. Ted Brownell was elected president; Hubert Drennen, vice-president, and D. K. Napp, treasurer. The duties of the secretary, who will be elected at a later meeting, will include the establishment of a bureau of information for tourists. The association desires to secure a secretary who is thoroughly conversant with road conditions in the Southeast. The association will take up active work in connection with highway improvement.

Acason Motor Truck Co., Detroit, through H. A. Conlon, vice-president and director of sales, has arranged to place at the disposal of visiting dealers interested in trucks all truck information possible. The names of all truck manufacturers, their places of manufacture, names of officials, etc., in Detroit and vicinity have been conveniently arranged for reference by Mr. Conlon. Appointments will be made for the dealers through the Acason Motor Truck Co.'s sales department, and an automobile will carry the dealers to the factories they desire to visit under the plan.

Union Switch & Signal Co., Swissvale, Pa., has recently added new steam drop hammer equipment, covering 3000, 5000 and 6000-lb. hammers, giving a total of over thirty steam and board drop hammers with a combined falling weight of over 65,000 lb., and with these added facilities expects to increase production to 1000 tons of steel per month.

Michigan Steel Castings Co., Detroit, Mich., is erecting a building to be used for moulding and core making and to house the engineering department. This building will give the company an additional 53,700 sq. ft. of floor space, and will require the employment of 100 more workmen. It will be completed in October.

Walker-Vallance, Ltd., Hamilton, Ont., announces that the company has entered the jobbing field. W. C. Hunter is in charge of the wholesale department.



A Vim Three-Ton Heavy-Duty Truck, Headed for Bristol, Pa., Twice Daily (88 Miles), Loaded With Refreshments for the Shipbuilders of the Merchants' Shipbuilding Corporation, of the Emergency Fleet Corporation.

GUARANTY PLAN BANKING

EVERY progressive truck dealer maintains two banking connections,

One of these is properly with his local bank for current deposits and expenses.

The other should be with the strongest banking institution specializing in the discount of automobile paper.

A connection with such an institution gives the dealer a certainty of being able to finance his receivables irrespective of local money-market conditions.

Continental Guaranty Corporation, known until April 15th as Guaranty Securities Corporation, has the largest resources of any banking institution in the world devoting its exclusive attention to automobile financing.

Resources of \$12,000,000, a strong organization, a clean-cut, four-square policy, and an abiding faith in the automobile industry have put the institution in the foremost place.

We solicit inquiries from responsible, well-rated merchants of trucks, who would like to discuss the matter of opening an account with us. Your inquiry places you under no obligation.

Continental Guaranty Corporation

Continental Guaranty Building

New York City

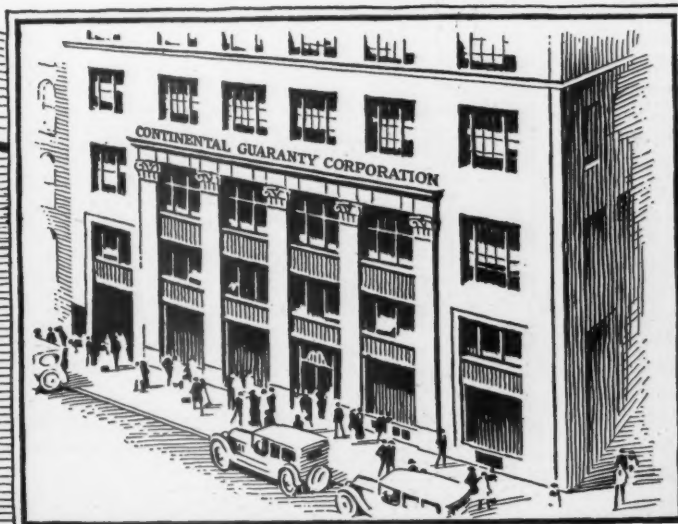
San Francisco

Montreal

Affiliated with Guaranty Banking Corporation

Continental and Commercial Bank Building, Chicago, Illinois

92,975 trucks and automobiles (worth over \$75,000,000) financed up to March 30, 1918



Reclaiming Motor Trucks to Assume Big Proportions

United States Government Plans to go Extensively Into Salvaging After the War. Its Trucks Used at the Front. Motor Car Concerns Push Used-Truck Departments Through Newspaper Advertisements

By K. H. LANSING

RECLAIMING motor trucks is bound to grow into a great business from now until the close of the war. The Government is going into it extensively, if not directly, at least by deputy, and motor car manufacturers who divert much of their output to war work will engage in it more than ever.

Motor truck dealers, too, who may be unable to obtain new cars because of Government restrictions, for the sake of keeping their organization together, will salvage used ones.

At the close of the war the Government plans to ship back from France for reclaiming at what will be a vast salvaging and repair station near Annapolis Junction, Md., the huge number of trucks now in use in actual war operations. Several thousand trucks which were made ready for shipment to the front before the plan of standardizing the cars in war work abroad was decided upon, and which therefore could not be used, will be assembled. These, with the reclaimed cars used in the war, says a representative of a motor truck concern which is doing government work, and who is in close touch with post-war plans, will be placed in government service, probably in the parcel post system, to solve as far as possible the problem of food distribution. Already the Government has done much to increase parcel post delivery by motor truck, as has been told several times in this magazine.

While the station at which salvaging will be done extensively after the war, according to present plans, already is doing considerable work along those lines, it is regarded as merely a beginning of operations of great magnitude.

It may be expected that concerns which hitherto have taken motor trucks only on trade-in propositions and which either have positively refused to rebuild any machines but those of their own factory's make, will become less unyielding in this regard. That does not mean that high-grade dealers are to become "gyms," but from what some motor car men say, the used department is going to be pushed by advertising, just as passenger cars have been advertised for years. While dealers disagree on this point, there seems to be sufficient trend in this direction to give it credence.

While certain motor car concerns always have advertised their used car departments, there is an increase in such display advertising noted in the daily press all over the country, and that increase has been within the sixty days

immediately preceding this issue. Both display and "liner" advertisements are much more numerous than before, while it is nothing unusual for a daily newspaper at the present time to run a column and a half of "liner" advertisements for motor car repairmen.

A point to be accentuated in the new phase of the used car business development is the demand for "transportation sizes." The call now is for the heavier type of truck, from five to six tons capacity, such as is used in inter-city hauling, since that enterprise has become widespread.

Since the writer prepared an article for the August number of COMMERCIAL CAR JOURNAL, so many new phases of

the used car trade have presented themselves that a further survey of the situation seemed advisable.

While it is just as true now that the legitimate dealer, as a usual thing, frowns on a "blister," regarding an old wreck of a machine in the same light as a physician does a palpably incurable case, not wishing to have anything to do with it, more attention is being paid to ways in which a fairly well used motor truck can be rehabilitated. Sometimes a good deal more will be spent on it than was figured on it as an allowance in the trade-in, with the result that it can be sold for twice that figure.

"I predict," said R. G. Cadden, head of the used truck department of the

AUTOMOBILES. ETC.
AUTOMOBILES. ETC.

USED TRUCKS

Exceptional Buys

All Late Models

We are listing a few of our special values, which are excellent investments for the man who needs trucks equipped with bodies.

READY TO GO RIGHT TO WORK

PACKARD—5-ton dump body with hoist; excellent condition.

PACKARD—3-ton open box body and cab; rebuilt and guaranteed

AUTOCAR—2-ton mechanical dump body.

AUTOCAR—2-ton express body.

REPUBLIC—1½-ton open express body.

DORRIS—¾-ton panel body; electric lights and starter.

FULTON—1½-ton large furniture body.

DORRIS—2-ton worm drive; chassis only.

ANY OF THE ABOVE TRUCKS CAN BE PURCHASED THRU OUR BRANCH OFFICES AT CAMDEN, WILMINGTON, TRENTON, READING, LANCASTER, BETHLEHEM, HARRISBURG AND WILLIAMSPORT.

USED TRUCK DEPARTMENT

Packard

Motor Car Co. of Philadelphia

319 North Broad Street

Locust 3900
Race 3500

Some Advertisements of Used Cars That Appeared in a Recent Philadelphia Sunday Paper

TRUCK BODIES FOR SALE

WE HAVE ON HAND SEVERAL TRUCK BODIES OF STAKE AND EXPRESS TYPE AND A FEW SLIGHTLY USED ONES FOR IMMEDIATE DELIVERY.

OVERLAND HARPER COMPANY
14-18 SOUTH 21ST STREET

Have you a car for sale? We

USED

Peerless

TRUCKS

REBUILT THOROUGHLY

TWO

5-TON PEERLESS

DUMP TRUCKS

will be sold with our guarantee. Price attractive.

TWO 2-TON AUTOCAR TRUCKS. Moore hoist and dump body.

1917 ROWE, 2 ton. Roller dump body; excellent condition.

AUTOCAR, 2 ton, open body; very good condition.

FEDERAL, 3½ ton, 1917. dump body. Woods hoist. Searall wheels; excellent condition.

GARFORD, 6 ton, dump body. Woods hydraulic hoist; very fair condition.

1916 SAURER, 5 ton, equipped with Woods hoist and steel dump body; excellent condition.

Girard Automobile Co.
Peerless Motor Trucks & Cars
2314-16-18 Chestnut St.

Sewell CUSHION Wheels

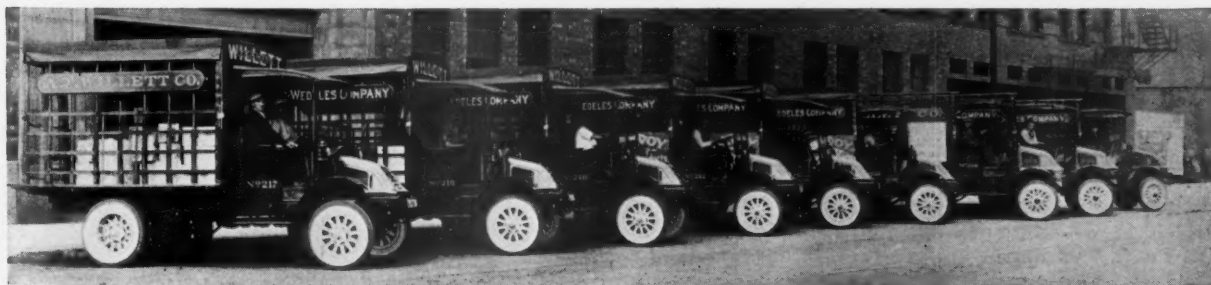
ON MOTOR TRUCKS ASSURE YEARS OF SATISFACTORY SERVICE



High-grade workmanship and material used in the construction of Sewell Cushion Wheels account for their lasting for years, and each year they effect the same desirable saving in truck operation and maintenance.

Sewell Cushion Wheels are guaranteed for five years, and there are hundreds of sets running today that have been in service five, six and seven years. This makes Sewell Cushion Wheels the most economical equipment for motor trucks that can possibly be used.

Notice to Truck Dealers { Sewell Cushion Wheels are an important factor in creating satisfied truck owners, and in laying a solid foundation for repeat orders. Write for full particulars.



A fleet of Kelly-Springfield trucks equipped with Sewell Cushion Wheels, operated by A. T. Willett Co., Chicago. This well-known firm has eleven trucks in service on Sewell Wheels.

Sewell Cushion Wheel Company

General Offices and Factory: Detroit, Michigan

Branches in the Following Cities:

Baltimore, 1125 Fidelity Building
Boston, 584 Commonwealth Avenue
Buffalo, 1028 Prudential Building
Chicago, 2010 Wabash Avenue
Cincinnati, 705 Providence Bank Building
Clarkburg, W. Va., Rock Bell & Son
Cleveland, 312 Citizens Building
Dallas, Texas, Fulton & Felix

Detroit, Mich., 1296-1300 Gratiot Avenue
Indianapolis, Ind., 318 East 28th Street
Jacksonville, Fla., 317 West 10th Street
Kansas City, Mo., Traders Building
Los Angeles, 3908 La Salle Street
Louisville, Ky., Crescent Hotel
Milwaukee, Wis., 211 Grand Avenue
Minneapolis, 3336 Emerson Avenue, So.
Newark, N. J., 505 Wiss Building

New Orleans, La., 611 Julia Street
New York, 1790 Broadway
Philadelphia, 5507 Chancellor Street
Pittsburgh, 804 May Building
Rochester, 193 East Avenue
Seattle, 1052 East Thomas Street
Springfield, Mass., 426 Dwight Street
St. Louis, 1423 Locust Street

Packard Motor Car Co., 319 North Broad Street, Philadelphia, "that within two months the used motor truck proposition will figure more largely in the motor car field than the used passenger car has ever done."

To the suggestion that this was a pretty strong statement, Mr. Cadden replied:

"I think the truck manufacturers and dealers have seen the writing on the wall with the taking over by the Government of motor truck plants—for instance, the White. More may be taken over from time to time and with the proper legislation the used truck trade will come to the front increasingly."

The Packard's used car department in Philadelphia has been using space in the Sunday newspapers of this city for a considerable period and lately has been stressing patriotic phases, transportation sizes, and also separate advertisements devoted to the smaller types such as one and one-half ton and two-ton express bodies and light mechanical dump bodies.

Other high-grade motor car concerns in Philadelphia whose used truck advertisements in the daily press now are figuring extensively, are the Peerless, through its local agency, the Girard Automobile Co., and the Overland Harper Co.

Evidently it is a time for pushing used car sales for a number of truck producers and dealers, with a big future looming up.

The Packard Motor Car Company, of Philadelphia, takes used motor trucks only on a trade-in basis and such cars are so thoroughly gone over and carefully rebuilt at the branch factory that they are sold with a guarantee. Mr.

Cadden has little sympathy with the truck dealer who has the facilities, and considers a used truck—not too much abused, for there's a difference between a used and an abused machine—not worth fixing up and reselling.

Selling service, as well as trucks, is not lost sight of by the Packard company in the used truck department, any more than in any other department. Sometimes, in the new car department, too, it has been found better to sell real service than to make a cash business deal that might result in a "comeback." For instance, according to a salesman in the Packard motor truck department, when a certain widely known publishing house in Philadelphia was about to purchase a fleet of trucks, the Packard concern was invited to make a proposition, with a number of other truck houses. According to custom, a Packard man made a thorough "diagnosis" and investigation of that publishing house's particular case, with the result that the publisher was plainly told:

"Your proposition is not a gasoline truck one. It is an electric truck case only. We advise you not to buy Packard cars, but to purchase some good electric machines."

Of course, the full reason why electric trucks would prove more satisfactory was explained to the publisher, with the result that he bought electric machines. Nevertheless, this was selling the Packard house and Packard service, for when that publisher who obtained such an honest opinion, after expert examination, needs gasoline machines, or in fact needs anything that the Packard house can supply, what concern will he patronize?

It takes moral courage, perhaps, to see a deal slip through in this way, but that a house pursues such a business policy indicates that it has been weighed in the balance. This is not the only case in which the Packard service has been sold in like manner, instead of Packard cars and the Packard house is by no means alone in following the policy.

The Overland Harper Co., 14-18 South Twenty-first Street, distributor in Philadelphia of Bethlehem motor trucks in addition to Overland and Willys-Knight passenger cars, has recently been advertising in the press its used truck department. This house also handles trucks only on a trade-in basis and also makes the point that transportation sizes of vehicles are those which are moved quickest from stock.

M. J. Biebl, manager of the truck department of the Overland Harper Co., made it clear that the advertisements in the daily press were for the purpose of moving the stock taken in trading and not that the company was inviting second-hand business.

"We try to turn over our used truck stock as fast as we can," said Mr. Biebl. "We do not like to take used trucks. For instance, why should a man having a motor truck wish to sell it if he is going to remain in a business that requires trucks? If his business improves, he is going to need more trucks, or add trailers, instead of selling any of his trucks. If he wants to sell it, it arouses the thought that it has been used up, or possibly abused by a poor driver. No concern selling new trucks likes to turn itself into a second-hand car exchange, or anything approaching it."

Cranes and Winches Help in Labor Conservation

In these days of man power shortage in all industrial lines the device that makes it possible for one man to do the work of two or more commends itself readily to employers. Nowhere is this more noticeable than with motor trucks. Where a certain unit product is handled in large quantities, the devising of methods for handling the loading and unloading is easier, for it need fit only the one case.

An example of this is the method used by the United States Radiator Corp., of Detroit, for loading the heavy iron steam

radiators of its manufacture onto motor trucks.

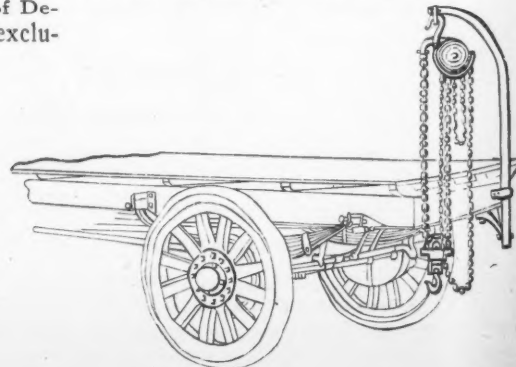
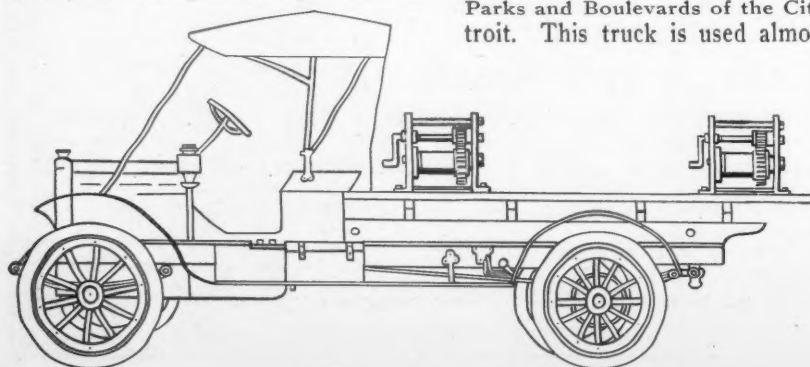
This company fits its trucks with a rugged little swinging crane very similar to a boat davit used on a ship, and hung with a Yale hoisting block. This crane is mounted at one of the rear corners of the truck, and radiators are easily hoisted from the ground and swung onto the truck by one man.

The same method could be used in loading many heavy pieces of freight which now require the services of two or more men in getting them onto the truck.

Another Detroit truck that is fitted with special loading machinery is a big Packard belonging to the Department of Parks and Boulevards of the City of Detroit. This truck is used almost exclu-

sively for handling poles and similar loads, and to load these with a minimum amount of labor it has been fitted with two hand windlasses, mounted on the left side of the truck about ten feet apart. Skids are placed against the opposite side of the truck, ropes fastened to the truck are passed around the pole to be loaded and thence to the drum of either windlass, and turning the windlasses soon lands the pole on the truck.

The Parks and Boulevards Department often has to remove dead trees, many of them of considerable size, and when they are once felled and cut into sections, this truck loads them by means of the windlasses with ease.



Methods of Applying Winches and Cranes Which Make for Saving in Man-Power



Pulling Power or Horse Power?

Perhaps you've seen a *forty horsepower* truck, with wheels pocketed in a "saucer," which had to be pulled out by a plain *one horsepower* horse. It has happened.

The engine in *that* truck was not a BUDA—it may have had its forty horsepower *at high speed*, but it *lacked* what the BUDA has—ability to pull hard *at low speed*.

When an engine has that ability it has torque—the power to turn itself against resistance—to pull to the last turn—something very different from horsepower.

Torque ordinarily is very low at low engine speeds, but the torque of the mighty BUDA TRUCK ENGINE is almost as great at its lowest as at its best speed.

THE BUDA COMPANY, HARVEY (Chicago Suburb), ILLINOIS

THE BUDA ENGINE

"HIGH CLASS"

Ohio Automobile Trade Association Perfects Many New Organizations

These are busy days for the energetic workers of the Ohio Automobile Trade Association, and hardly a week goes by that does not see the organization of several new local associations affiliated with the parent body. The headquarters of the organization, at 150 East Broad St., Columbus, sees little of Manager Victor Moon, for he is giving almost all of his time to organization work in all sections of the state.



Victor Moon
Manager of the Ohio Automobile Trade Association, in a jovial mood.

Within the last month the following new local associations have been formed:

At Fremont a local association has been formed with Fred Durnwald as president, and L. G. Post, secretary.

Clyde elected J. J. Jordan, president, and L. C. Wiedle, secretary.

Bellevue, Louis Jacobs, president; C. B. Royer, vice-president, and George Klein, secretary.

At Bellefontaine there was an enthusiastic meeting of the Logan County dealers, and the Logan County Auto Trade Association was formed, with George W. Cronley, president, and Merlyn R. Whitney, secretary.

Wyandot County dealers met at Upper Sandusky and formed the Wyandot County Auto Trade Association. W. J. DuPont was elected president; W. H. Phelps, vice-president; J. B. Johnson, secretary, and C. H. Johnson, treasurer.

In addition to these new organizations there have been added to the association within the last quarter the following:

Norwalk Automobile Accessory Dealers' Association, A. J. Reamer, president.

Scioto County Dealers' Association, Portsmouth, Alex Glochner, president.

Athens County Automobile Trade Association, Athens, J. R. Lostrow, president.

Cincinnati Automobile Trade Association, H. H. Brenner, president.

Springfield Automobile Trade Association, a reorganization of the former association at that place, with H. G. Root as president.

Out of a total of 88 counties, the state association now has local organizations in 70 counties, and is fast arranging for organization in the remaining eighteen. Manager Moon is constantly at work along this line, and the trade has awakened to the need of organization as never before.

The state association is urging all local organizations to get on a war basis, to observe Sunday closing, eliminate free service and to do business on a cash basis. Excellent results have been achieved wherever organization has been perfected and the trade throughout Ohio is co-operating as never before toward a betterment of conditions.

The association is now publishing a monthly bulletin, very well edited, which is sent to every automobile and accessory dealer in the state, whether affiliated with any organization or not. The bulletin is having its effect in showing non-organized dealers the necessity of getting together.

"Is This Your Town?"

Under the above caption the following interesting bit of observation and advice appears in the August issue of the Official Bulletin of the Ohio Automobile Trade Association, edited by Manager Victor Moon:

"When we get back from a trip to some of the towns in Ohio, we stop and wonder how the auto tradesmen in those towns keep out of jail. According to the stories we hear they have committed every crime on the calendar, except possibly murder. Nothing is holding back the auto industry more than this petty jealousy and ill feeling between dealers in the same town.

"The industry can never have the standing it should have, nor can the dealers be prosperous so long as this condition exists. Get together and get acquainted with your competitor. Make him your best friend, instead of your worst enemy. Both of you will make more money, and give your customers better service. So long as you feel that the other fellows are crooks, you will have little respect for the business, and if you do not respect your business, how can you expect others to?

"Get it out of your system. Be a man."

Crude Oil Prices Will be Standardized

A plan has just been made effective through the co-operation of the National Petroleum War Service Committee and the United States Fuel Administration stabilizing the price of crude petroleum to both the large and small refiners and maintaining the flow of crude oil in its present channels. It is believed that the arrangement will prevent any radical change in consumers' prices of gasoline and other oil products.

The details are to be handled by committees on conciliation and co-operation of the various producing fields. It has been the custom for various refiners to bid against each other for crude production by paying premiums in excess of the base rates for oil as established by the larger pipe line companies. This has resulted in the diversion of oil from one refinery to another and in many instances the payment of excessive prices for crude oil. It has led to considerable disorganization, and for some months the Fuel Administration has sought to correct these practices. The greatest difficulty arising from this situation was experienced in the Middle Continent field.

Mark L. Requa, General Director of the Oil Division of the United States Fuel Administration, recently met the producers and refiners of the Mid-Continent field at Tulsa, Okla., and Houston, Tex. As a result of his suggestions the producers and refiners named from their own members committees to adjust any local dispute which, in the event they were unable to settle, it was agreed, would be referred to the National Petroleum War Service Committee. Should the National Committee be unable to adjust the dispute referred to it, appeal may then be had to the Fuel Administration.

The plan provides generally for maximum premiums to be paid for oil of varying qualities in the various fields throughout the United States. It arranges, so far as is practicable, for the flow of oil in existing channels and assures protection as to price and supplies for small refiners. At the same time, it will prevent any radical change in consumers' prices due to the competition which has influenced such prices.



The Rowe Motor Manufacturing Company's New Factory Building

The illustration shows the new factory building of the Rowe Motor Manufacturing Company, Lancaster, Penna. Already this company has under way another addition to this building, which is necessary to take care of its increased production. This building will be 120 x 200 feet, and will give a total additional floor space of 24,000 square feet, giving the company a total of 48,000 square feet of floor space.

Quick Newspaper Delivery



THAT never-ending demand for "news" necessitates the continual running of giant newspaper presses, and the maintenance of a regular timed-to-schedule motor delivery for newspaper distribution throughout the length and breadth of the larger cities.

These speedy trucks must be equipped with tires that insure against any possibility of "tire trouble."

By equipping with "NOBBY CORD" PNEUMATIC TRUCK TIRES, a wider and faster range of delivery is made possible—all vibration is reduced to a minimum, thus affording buoyancy and protection to the truck's mechanism.

In these thrift days, all this means a decided saving in the upkeep cost.

United States Tires Are Good Tires





A Good Farm Model Truck

To be useful to a farmer a motor truck must successfully meet every demand imposed upon it by the many varied loads to be transported. Not only must it haul farm products from the soil, but it must be prepared to haul live stock if needed for this purpose. The accompanying photograph shows body model that is designed to meet these requirements. This truck has a steel end dumping body controlled by a hydraulic hoist, thus loads to be dumped are quickly disposed of. They also have an extra top made of wire and steel, which is mounted on the body when live stock is to be handled. This also permits capacity loading of freight, produce, and other bulky material. The truck shown is in use on the Beechwood Farms, Sharpsburg, Penna. It is a three and a half ton Federal.

Tractors Used for Hauling in Maryland Must be Registered

Since the passage of chapter 85 of the acts of 1918, of the general motor vehicle law of Maryland, all tractors and traction engines are defined as motor vehicles, within the meaning of the law.

All tractors and traction engines, therefore, must be registered when operated on public highways, the same as any other motor vehicle. Each such tractor or traction engine must, in addition to carrying the registration tag, have the certificate of registration which accompanies each tag.

Penalties for failing to carry a certificate of registration provide for a fine of not less than \$10 nor more than \$100 for the first offense, except in case where the certificate of registration has been issued, but the operator has, through inadvertence, failed to have it with him at the time of his arrest. In the latter case the fine is from \$1 to \$100. The provisions of the law apply to both the operator and the owner.

Each tractor or traction engine, or any other similar vehicle used for transportation or hauling, is required to pay a registration fee of \$25 per annum.

This fee does not apply to tractors or traction engines used exclusively for hauling threshing outfits, clover hullers, hay balers, binders and other similar farming implements. As to such traction engines, where no fee is charged, the provision as to registration applies, and the commissioner will issue tags and certificates free of charge.

The law gives the commissioner of motor vehicles authority to refuse, revoke or suspend the markers and certificate of registration of any motor vehicle which is so constructed or operated as to cause unreasonable damage to the public highway.

This provision is of great importance,

according to Maryland authorities, because it enables the commissioner to enforce rigidly the provisions of the law which are intended to safeguard the public roads from the excessive wear and tear caused by any careless operators of tractors or traction engines, and to put an end to the practice of driving such machines along the public roads without having the spikes or cleats on the wheels covered. In addition to forfeiting the registration tag and certificate, those convicted of unreasonably damaging the public highways are subjected to a fine under subsection 1 of section 149.

Screw Threads to be Standardized

An act, H. R. 10852, to provide for the appointment of a commission to standardize screw threads has been passed by Congress and has received the signature of the President.

Nine commissioners will be appointed, and will include the Director of the Bureau of Standards; two commissioned officers of the Army, to be appointed by the Secretary of War; two commissioned officers of the Navy, to be appointed by the Secretary of the Navy; and four to be appointed by the Secretary of Commerce, two of whom will be chosen from nominations made by the American Society of Mechanical Engineers and two from nominations made by the Society of Automotive Engineers. The commission will terminate at the end of six months.

The commission will be occupied chiefly with the work of establishing standards of screw threads for acceptance and adoption in manufacturing plants under control of the War and Navy departments, and as far as practicable, for screw threads in general use throughout the United States.

Denby Motor Truck Co., Detroit, Mich., is adding three new buildings to its plant. Of the three buildings, all intended for assembly purposes, one will be of steel and concrete, 140 x 175 ft., and the others will be of wood construction. These buildings will give the company twice its present floor space, and it is hoped to double the present production, which is approximately 10 trucks per day.



Window Display Teaches Business Men Value of Motor Truck Transportation

The New York representatives of the Fulton Motor Truck Company of Farmingdale, Long Island, are carrying on an educational campaign by means of a large and unique window display at their salesrooms, at 1806 Broadway. In the foreground is shown a replica of the Fulton factory. Directly behind this stands a scale with a miniature Fulton truck in one pan and three two-horse teams in the other. It bears the caption, "One Fulton Truck Equals Three Teams." A hidden mechanism keeps the arms of this scale in motion. In the background are four immense slates, very reminiscent of early school days, the center one containing figures on operating expenses and showing how much more economical a Fulton truck is than a horse vehicle. The outside slates contain a list of many features to be found in the Fulton trucks. These slates are changed from time to time, so that a full description of the truck may be given.

MASTER TRUCKS

The biggest thing we can say about Master Trucks—the one thing that ought to interest you—the dealer—who is looking for a profitable truck line—is that the slogan

Master of the Load On ANY Road

really tells the Master story.

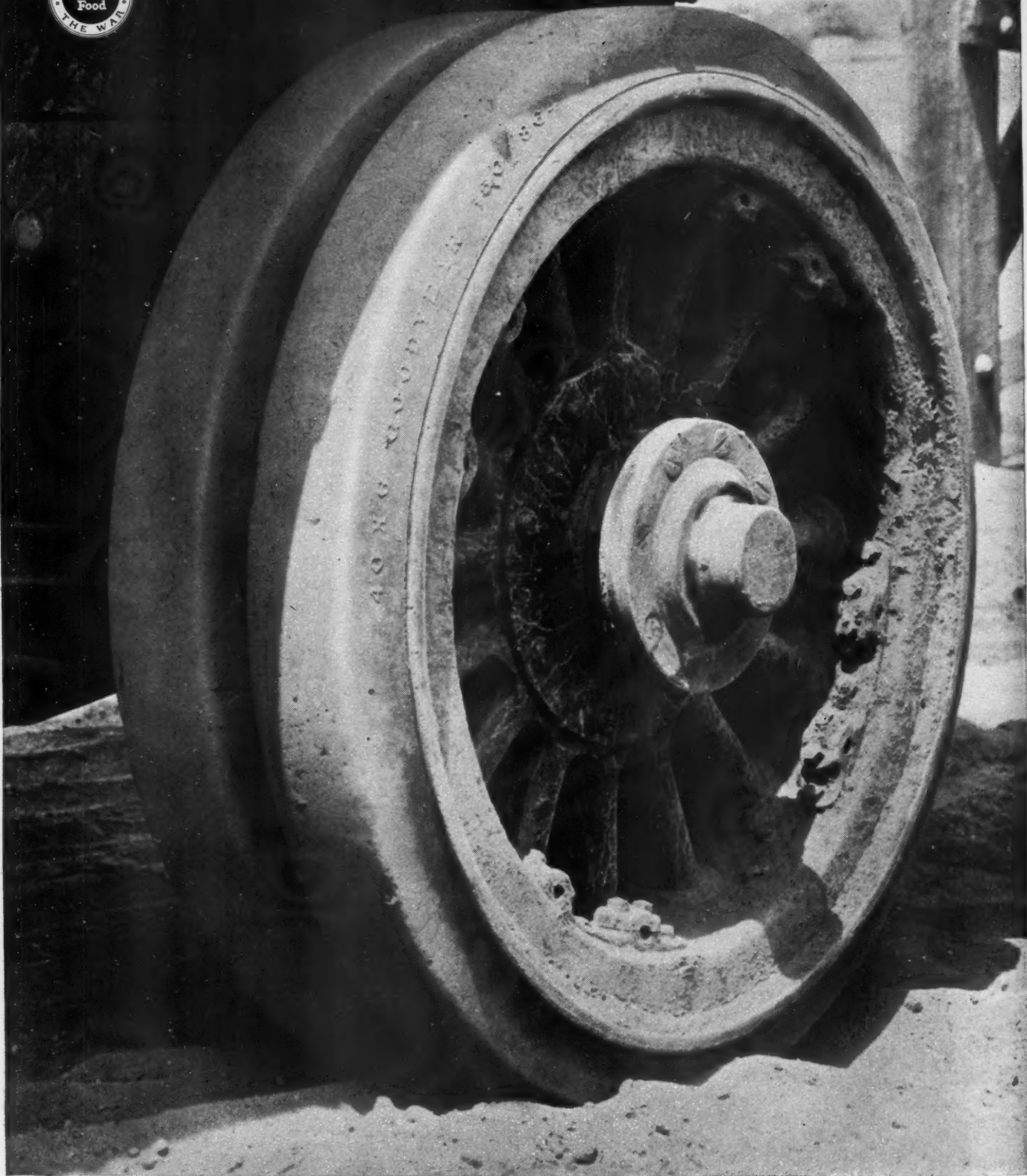
Master construction in every part is bigger—stronger—than necessary. Consequently when you sell a Master Truck you are *not* spending your profits in service.

We want a few more good dealers who want a full line of trucks that have made good. Master Trucks are made in the following sizes:

2-ton "M," internal gear drive	2-ton "WL," long wheel base
2-ton "O," long wheel base,	worm drive
internal gear drive	3½-ton "A," worm drive
2-ton "W," worm drive	5-ton "B," worm drive
6-ton Tractor "T"	

MASTER TRUCKS, Inc. 3131 S. Wabash Avenue
CHICAGO





Actual photograph of dual equipment of Goodyear S-V Solid Tires in service on a five-ton unit of the Ames Transfer Company, New York

GOODYEAR
AKRON

"S-V" Solid Tires—and Your Truck Sales

SINCE the inception of the motor truck industry Goodyear has pioneered the improvement of solid tires.

An early success was the perfecting of processes by which the soft tread rubber is joined to the hard base rubber and this in turn united with the steel tire-base so as to prevent separation.

Then Goodyear introduced the pressed-on tire and developed new methods of compounding tread rubber to increase both resiliency and durability.

The composite result was the Goodyear S-V Solid Truck Tire, now with two decades of epochal manufacturing accomplishment behind it and with many mileage records up to 20,000 on country routes and 40,000 in city service.

Yet despite these immensely gratifying results, Goodyear has continued solid tire experimental work on a broader scale than ever.

And this is more than a constant and typical inter-organization effort to surpass the most noteworthy achieve-

ments thus far attained in the making of Goodyear S-V Solid Truck Tires.

In addition to regular factory testing, extensive field tests are conducted because of their great effectiveness in assisting the scientific development of truck tires.

About 3,000 tires, constituting Goodyear equipment on 575 trucks operating in New York City, are under close observation at one time; in fact, approximately 15,000 such tires have been thoroughly tried out to date.

In these tires we have tested about forty separate compounds, fifteen cross sections, fifteen base constructions and eighteen cures.

Consequently the S-V of today is better fortified than ever for work in which in the past it has shown itself to be the most redoubtable and economical of solid tires.

To truck manufacturers and dealers, these facts firmly assure the continuance of that wide preference that exists for Goodyear S-V Tires as original equipment on trucks.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

SOLID TIRES

Hess-Bright Ball Bearings



When you buy a really good truck—

you will probably get one equipped with Hess-Bright Ball Bearings for it is as true of trucks as passenger cars—the best makes use them.

For their quality is a definite thing—established by years of service. The little difference in first cost is lost in the value of the service rendered and that

service is a real thing because of the manner of their making.

When you buy Hess-Brights you add an asset to your business. For weeks and months, in and out, they will do their work without failure. They will maintain their reputation in your service.

THE HESS-BRIGHT MANUFACTURING COMPANY

Where Performance takes Preference over Price



Arrow Grips

Insure Safety of Traction

With the vast industries of America organized for war and depending upon motor trucks for their constant supply of materials, the failure to equip trucks with an efficient traction and non-skid device is equivalent to adopting a "giving aid to the enemy" policy.

Big corporations all over the United States are selecting Arrow Grips as standard non-skid equipment.

Selection of Arrow Grips was made after exhaustive tests of all the best makes of non-skid devices.

Arrow Grips will be big sellers this season. We want live dealers all over the United States. The supply of Arrow Grips, we believe, will be uninterrupted.

Arrow Grip Mfg. Company, Inc., Dept. F
Glens Falls **New York**

Chicago Distributing Depot:
 617-19 Fulton Street

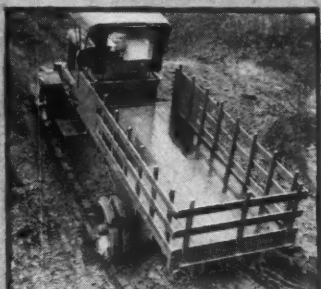
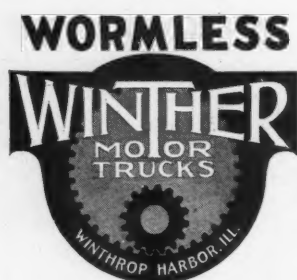
New York Distributing Depot:
 Arrow Specialty Co., Inc.
 16 West 61st Street, New York City

The Canadian Fairbanks-Morse Co., Ltd.
 84-98 St. Antoine St., Montreal, Canada

Arrow Grips will be on exhibition at the Automotive and Accessory Exposition, Municipal Pier, Chicago, Illinois, from September 14th to 21st, and at the National Exhibit of Automotive Equipment, given by the National Association of Automobile Accessory Jobbers at Medina Temple, October 28th to November 1st, inclusive.

**On and Off
 in a "Jiffy"**





THE START



HALF WAY UP



STILL COMING UP



OVER THE TOP

THESE photographs were taken in a test by our advertising agents, the Charles H. Fuller Company, of Chicago, without any of our representatives being present. The grade of this hill was 67 per cent—the "Road" a mere track up the side of a ravine.



Go Over the Top with Winther 4 Wheel Drive

To Distributors of Motor Cars, Motor Trucks and Tractors:

The first public announcement of Winther Four-Wheel Drive appeared in *The Saturday Evening Post*, August 24th.

The response has been instant and countrywide. We urge every dealer in Motor Cars, Motor Trucks and Tractors to read that announcement, or wire for full details of this additional series of Winther Motor Trucks, which gives you the greatest money-making opportunity this industry has ever seen.

There are no adequate terms to describe the performance of Winther Four-Wheel Drive. Winther, driving on all four wheels, with interlocking differentials, will take its load where motor trucks have never before gone. We know of no service which a motor truck might be called upon to render which Winther Four-Wheel Drive will not meet successfully.

The Rural Express

For the first time Four-Wheel Drive Motor Trucks have been made available for farm use. The 1½ ton Winther Trucks have been produced with the especial thought of giving the American farmer a motor truck—a real utility wagon—of unheard of efficiency at a price he can afford to pay. The same spirit and confidence which has prompted every farmer to purchase a binder and other modern equipment calls him now to motorize his hauling. Every farmer in America will be interested in a motor truck which will, with economy, go anywhere a team can pull a wagon.

The number of additional trade connections which we can establish is of necessity limited. We advise that you secure complete details without delay.

WINTHER Rear-Drive Trucks

- Model 38, 1½ tons capacity
- Model 48, 2 tons capacity
- Model 68, 3 tons capacity
- Model 88, 4 tons capacity
- Model 108, 5 tons capacity
- Model 128, 6 tons capacity
- Model 148, 7 tons capacity

WINTHER Four-Wheel Drive]

- Model 438, 1½ tons capacity
- Model 448, 2 tons capacity
- Model 468, 3 tons capacity
- Model 488, 4 tons capacity
- Model 4108, 5 tons capacity
- Model 4128, 6 tons capacity
- Model 4148, 7 tons capacity

WINTHER MOTOR TRUCK CO.
DEPT. A. ... WINTHROP HARBOR, ILL.



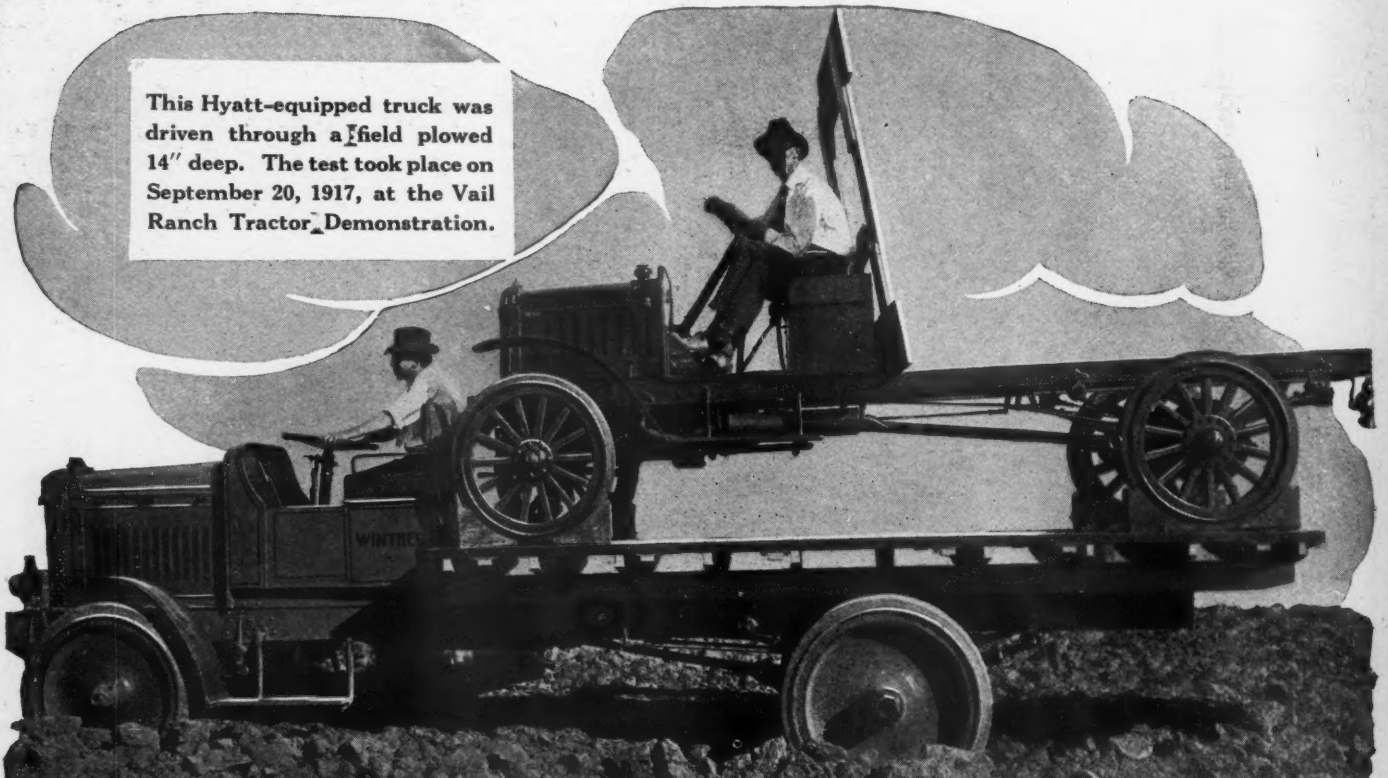
The most modern annealing furnaces and equipment, combined with careful attention to this part of our process, insures the easiest possible machining qualities in Michigan Steel Castings.

Try them—not now, but after the war is won.

MICHIGAN STEEL CASTINGS

Michigan Steel Castings Company, Detroit, Michigan

This Hyatt-equipped truck was driven through a field plowed 14" deep. The test took place on September 20, 1917, at the Vail Ranch Tractor Demonstration.



Punishment Tests Have Simply *Proved* Them

HYATT

QUIET

ROLLER

BEARINGS

Hyatt Bearings—like the majority of products that hold unqualified records—have run the gauntlet of punishment purposely aimed to find their limit of endurance.

As yet, it has not been found. In fact, these forced applications of punishment have simply *proved* Hyatts.

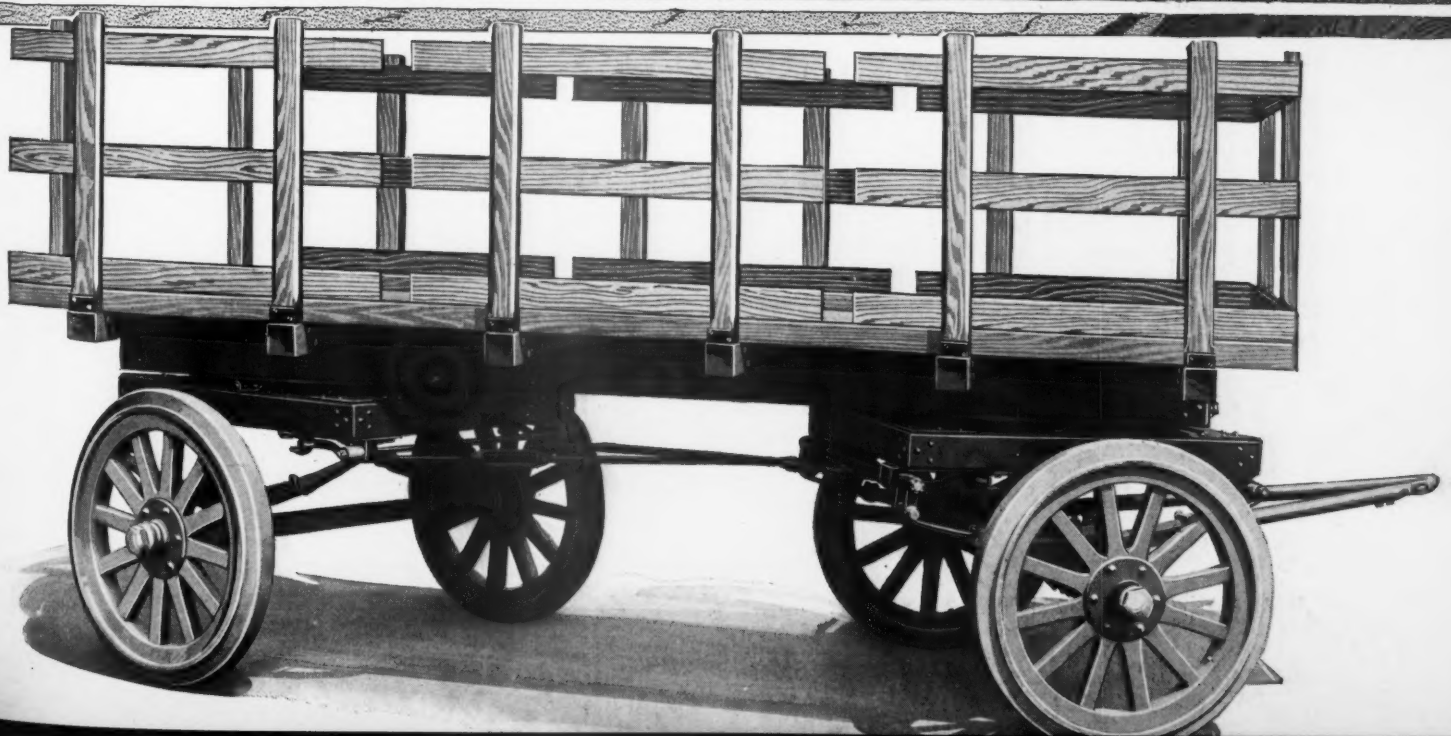
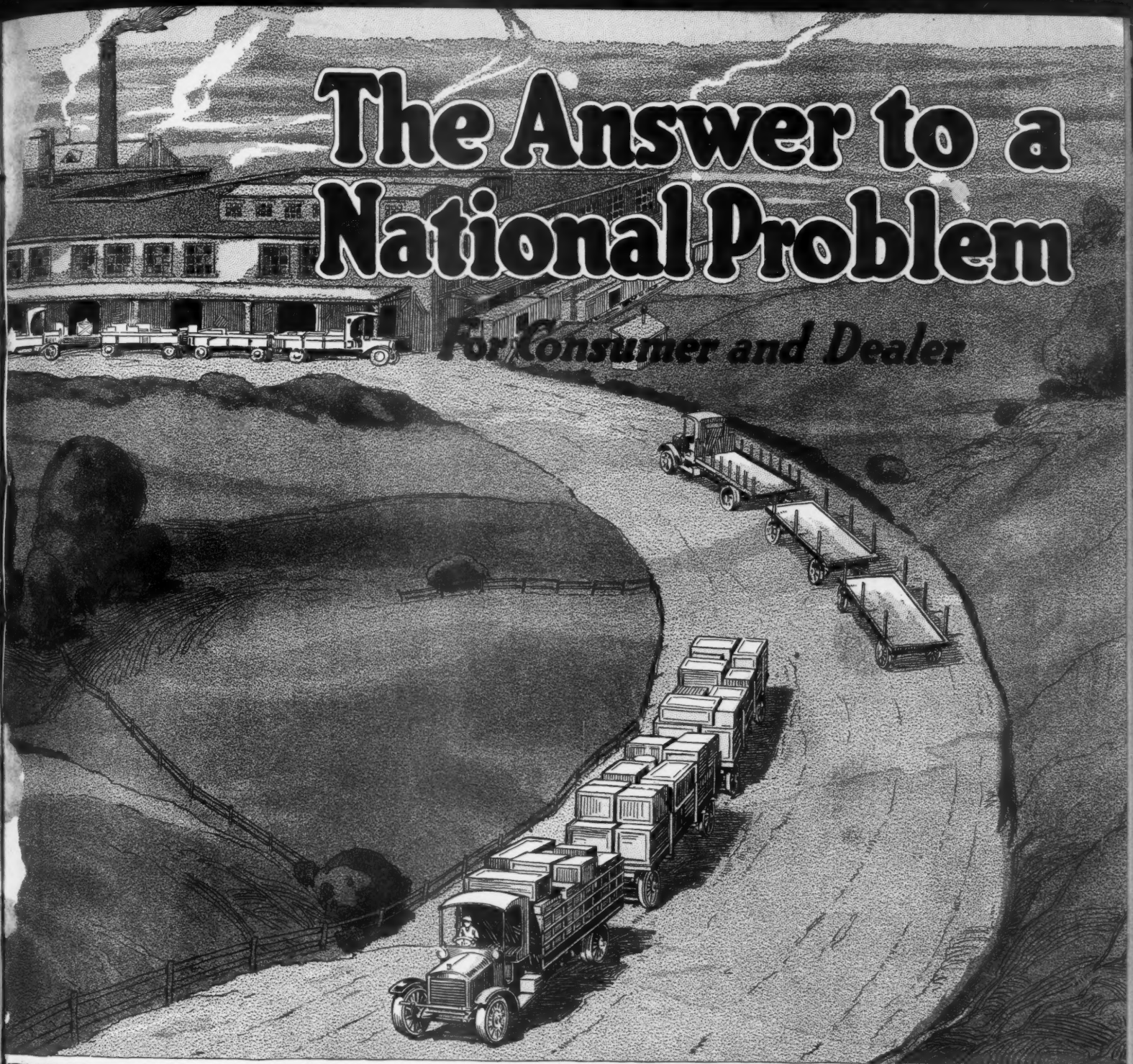
Their strength has been shown to be practically a super-strength. Their dependability — inexhaustable. Their carefree service—their ability to clean themselves, to oil themselves, to keep themselves in perfect working order—100% infallible.

The added life and lower upkeep costs of every truck and passenger car in which they are installed are tangible evidence of the wisdom of an investment in motor bearings that absorb shocks and reduce friction.

Hyatt Roller Bearing Company
Detroit Chicago New York

The Answer to a National Problem

For Consumer and Dealer



REDDEN TRAILER is the answer to the transportation problem.
One motor truck can pull both loads.

The trailer can be loaded and unloaded while the truck is making other deliveries.

The trailer can be handled by the same men who handle the truck.

The trailer helps conserve gasoline and oil.

The trailer requires no special care.

The Redden Trailer is two-ton capacity, steers and tracks perfectly and, in every sense of the word, performs the dual purposes of a truck and the saving of expenses in its operation.

Business with big hauling to do is finding it more profitable and efficient to have less trucks and more trailers. The trailer that stands out conspicuously for dependability, durability and value is the

REDDEN TRAILER

Tracks Perfectly

Firms that started with one trailer now have fleets of trailers. Trailers cut hauling costs from 50% to 75%! This is how they accomplish it.

As hauling increases, they do not buy more trucks—but more trailers.

This not only dispenses with the wages of drivers and help, but reduces maintenance costs—gasoline, oil, repairs, adjustments, etc. It also means that where the trucks were idle for hours waiting to be loaded and unloaded—they are now in continual service! It saves insurance.

While several trailers are being loaded, others are on their way. While these are being unloaded at their destination, the trucks pick up the unloaded trailers and come back for trailers that have been loaded at the factory in the meantime.

Every man with a truck is a Redden trailer prospect.

Dealers thruout the country know the Redden Motor Truck Company and their square deal business methods. Their products, including the trailer, will stand the acid test of competent, impartial examination from every utility and mechanical view point.

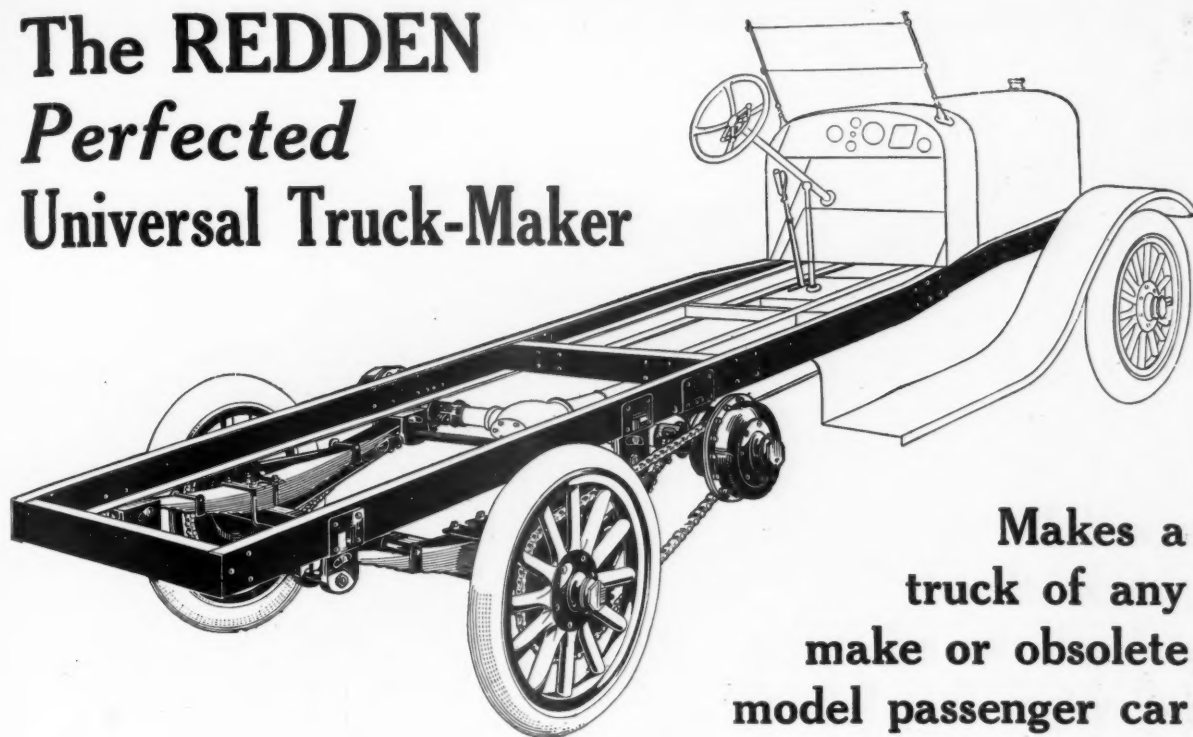
EXCLUSIVE WANTED FEATURES

It has other powerful selling features that over-tower those of any other trailer.

The front and rear wheels track perfectly forward or backward—a wonderful advantage in turning corners.

Wire or Write—or come to Chicago

The REDDEN *Perfected* Universal Truck-Maker



**Makes a
truck of any
make or obsolete
model passenger car**

REDDEN PERFECTED UNIVERSAL is the answer to the great demand for converting out-of-date and unsaleable passenger cars into light delivery trucks.

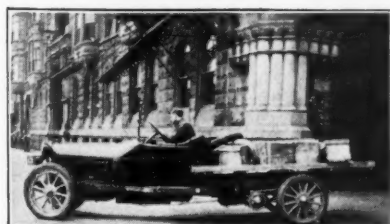
Here is the only *Perfected* truck-maker on the market that will fit any make or obsolete model passenger car easily and quickly. Any man can attach it himself in a barn.

No machine shop needed; no milling; no machinery; no expert mechanic wanted. The only tools needed are—hammer,

hack saw, cold chisel and drill. No matter what type of axle the car has—semi-floating, three-quarter floating, seven-eighths floating, or full floating—this Redden *Perfected* Universal Attachment fits perfectly.

Three-fourths of a truck is in your territory!

This, together with the price of the attachment, offers a saving of hundreds of dollars on a truck that will do as good or better work as a built-up truck of same capacity, and helps Uncle Sam by saving freight car space.



View showing the Redden Perfected Universal Truck-maker attached to an old car. Note that the weight is on the rear axle! This car was converted into a truck at no expense save the attachment.

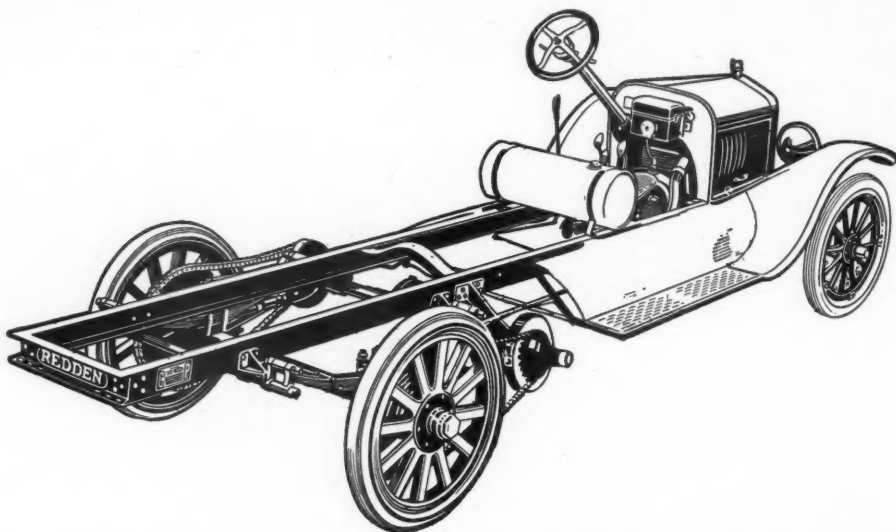


View showing the almost impassable roads over which a truck made from a Redden Perfected Universal Truck-maker negotiated without fear of breakage. It's made for real hard service.



The driver of this truck, made with the Redden Universal Truck-maker, was warned not to travel over this road on account of bad condition—but it came through fine, carrying a heavy load.

Wire or Write—or come to Chicago



The REDDEN ATTACHMENT

For making Fords into trucks

Over 3,000 business houses are using trucks made from the Redden Ford Attachment.

Among them are Armour & Company, Packers; Francis H. Leggett & Company, Foods; Ward Baking Company; Coca Cola; Barrett Manufacturing Company, Roofing; Great Western Oil Company; Detroit City Gas Company.

One great Canadian department store has a fleet of 28 Reddens.

For farmers, transfer and storage businesses, merchants, teaming, lumber yards, coal dealers, mines, provisioners, manufacturers, factories, the Redden Attachment for Ford Cars offers almost unlimited sales possibilities.

Message to Dealers

You are wondering how to fill the gap in sales because you are not getting your full allotment in passenger cars.

Hitch up to the Redden Line.

Every man who has any hauling to do is a prospect for either the Redden *Perfected* Universal Truck-Maker or the Redden Ford Attachment. Every man with a truck is an almost sure prospect for a Redden Trailer.

Immediate Deliveries

We are in a position to make immediate deliveries for the Redden Complete Line. Get in on this proposition and secure your territory now. Our proposition to you is very

attractive and a square deal one. National Advertising is making a gigantic smash with this Redden startling war-time transportation development.

REDDEN MOTOR TRUCK COMPANY, Inc.

2337 South Michigan Avenue, Chicago, Illinois, U. S. A.

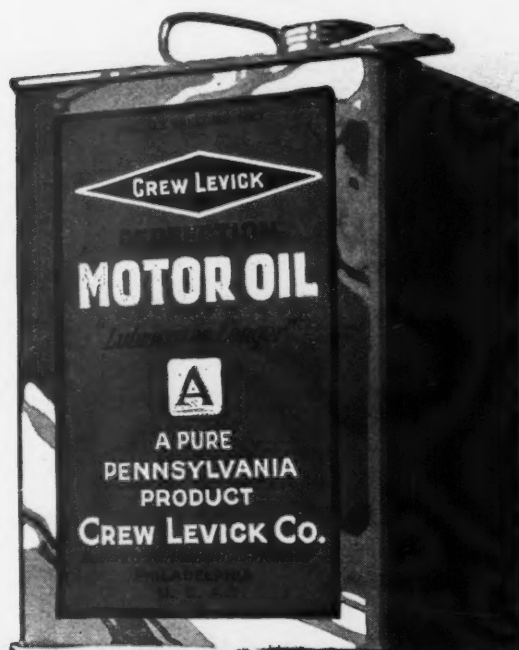
NEW YORK OFFICE
Redden Motor Truck Co., Inc.
224 West 57th Street
New York City

PACIFIC COAST
Redden Pacific Co.
1608 L. C. Smith Bldg.
Seattle, Wash.

WESTERN CANADA
Western Canada Auto Tractor Co., Ltd.
315 Hammond Bldg.
Moose Jaw, Sask.

Wire or Write — or come to Chicago

For Trucks



Sold in barrels, half barrels; also 5-gallon and 10 or 1 gallon sealed cans.

TRUCKS run under far more severe conditions than pleasure cars—that is an axiom every truck owner knows.

War-time work is more exacting on trucks; depletion of skilled labor has resulted in less efficient repairs. Repair parts cost more, but—what is worse—are hard and slow to get.

Wear depends largely on the extent and character of lubrication.

Therefore, it is more than ever important to use the best possible lubricant obtainable.

The best crude oil is Pennsylvania crude, and the best oils refined therefrom are

Crew Levick Perfection Motor Oils and Greases

It may cost \$8.00 to \$10.00 more per year per truck for the best lubricants, but a year added to the life of a truck represents far more than that sum. Nor does the return from the investment stop there, for the best lubricants will mean lower repair expenses, lower replacement bills, lower operating costs, and lower depreciation.

True Quality is always worth its higher cost; use Perfection Motor Oil.

Crew Levick Company

127 North Broad Street, Philadelphia, Pa.

Subsidiary Cities Service Company

Branches: New York Chicago San Francisco Baltimore Boston

One of the oldest and largest producers and refiners of oil and manufacturers of petroleum

ESTABLISHED IN 1862

CREW LEVICK

"as old as the industry"



Food

- 1- buy it with thought
- 2- cook it with care
- 3- use less wheat & meat
- 4- buy local foods
- 5- serve just enough
- 6- use what is left

don't waste it

U.S. FOOD ADMINISTRATION

Wilson

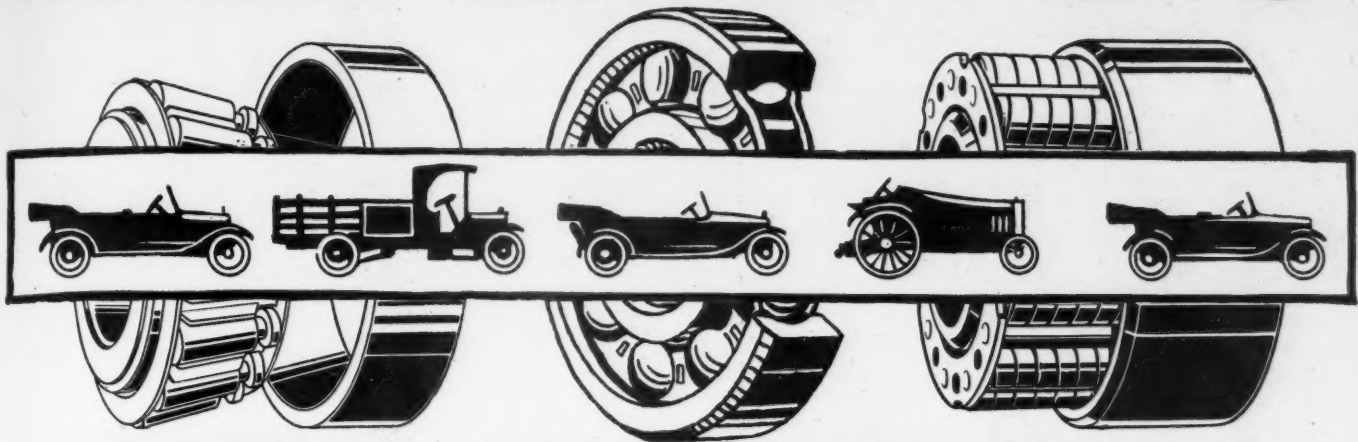
Entire production and sales distribution is confined exclusively to activities and pursuits directly connected with the Winning of the War.

WILSON trucks have not only built up an enviable reputation for being good, but, most important of all—**STAYING GOOD.**

Their extreme simplicity and minimum number of parts represent a great asset to their owners in these days of high prices for all materials.

J. C. WILSON COMPANY, DETROIT

BEARINGS



TIMKEN NEW DEPARTURE HYATT

**for any make of
motor truck, motor
car or tractor ever
manufactured**

TWENTY-TWO BRANCHES

New York
Detroit
Chicago

Boston
San Francisco
Los Angeles
Atlanta

Seattle
Minneapolis
Kansas City
Dallas

Cleveland
Denver
Indianapolis
Rochester

Philadelphia
St. Louis
New Orleans
Omaha

Pittsburgh
Portland, Ore.
Toronto, Can.

Authorized Distributors in 500 Other Cities



BEARINGS SERVICE COMPANY

STANDARD

Worm-Drive Axles

Type "C"

1½ Tons Capacity

Because of its low upkeep, silent operation, long life and high-grade performance, it is the ideal drive for trucks of one and one-half tons capacity.



The Type "C" Standard Worm-Drive Axle is designed to give the highest mechanical efficiency, the greatest economy of operation and the sturdiest durability.

Specifications

MATERIALS—All materials are the best obtainable and are subjected to rigid tests and inspection before acceptance.

DRIVING SHAFTS—2¼" diameter.

HOUSING—Axle housing one-piece casting, sand-blasted.

WORM AND WORM WHEEL—Special steel worm, carefully ground; special alloy bronze wheel, giving a maximum of wear with minimum of friction.

DIFFERENTIAL—All differential gears and pinions are special alloy steel, heat-treated, with 1¾" face and 4" pitch. The differential spider has 1" diameter arms, is of special alloy steel and heat-treated.

BEARINGS—Special self-contained, cone type, combined radial and thrust bearings at each end of worm shaft, and high-duty radial and thrust bearings at each side of differential and outer shaft ends.

MOUNTING—Worm, wheel and differential are mounted as a unit on a one-piece casting, which forms a cover for the case.

BRAKES—The axle is furnished with two sets of internal expanding brakes, 2¼" wide and 14" diameter.

GREASE RETAINERS—Special felt washers provided at all openings to prevent oil and grease from creeping out of housing.

RATIO—7¼ to 1; other sizes optional.

LUBRICATION—Special splash system for worm and wheel and differential.

Prompt deliveries. Write for complete details

CHICAGO STANDARD AXLE CO.

Manufacturers

The Standard Worm-Drive Axle
1801-09 Belmont Ave. Chicago, Ill.



KISSEL TRUCKS

WITH the business world looking to the motor truck to help solve its transportation problems, the line of known value, establishment and reputation carries the biggest advantages in competing with the business at hand.

The more exacting truck buying standards become, the more apparent is Kissel's leadership. For ten years, Kissel's foresight, initiative and progress in engineering, designing and manufacturing, have lifted Kissel Motor Trucks to that enviable position that makes the Kissel agency a matter of supplying rather than selling.

Agency details upon request.

Kissel Motor Car Co., Hartford, Wis., U.S.A.

New Delivery Standards

Long before quick delivery of war munitions and machinery became vital, MACK Trucks had proved their fitness to take capacity loads anywhere, and stand gruelling, continuous service.

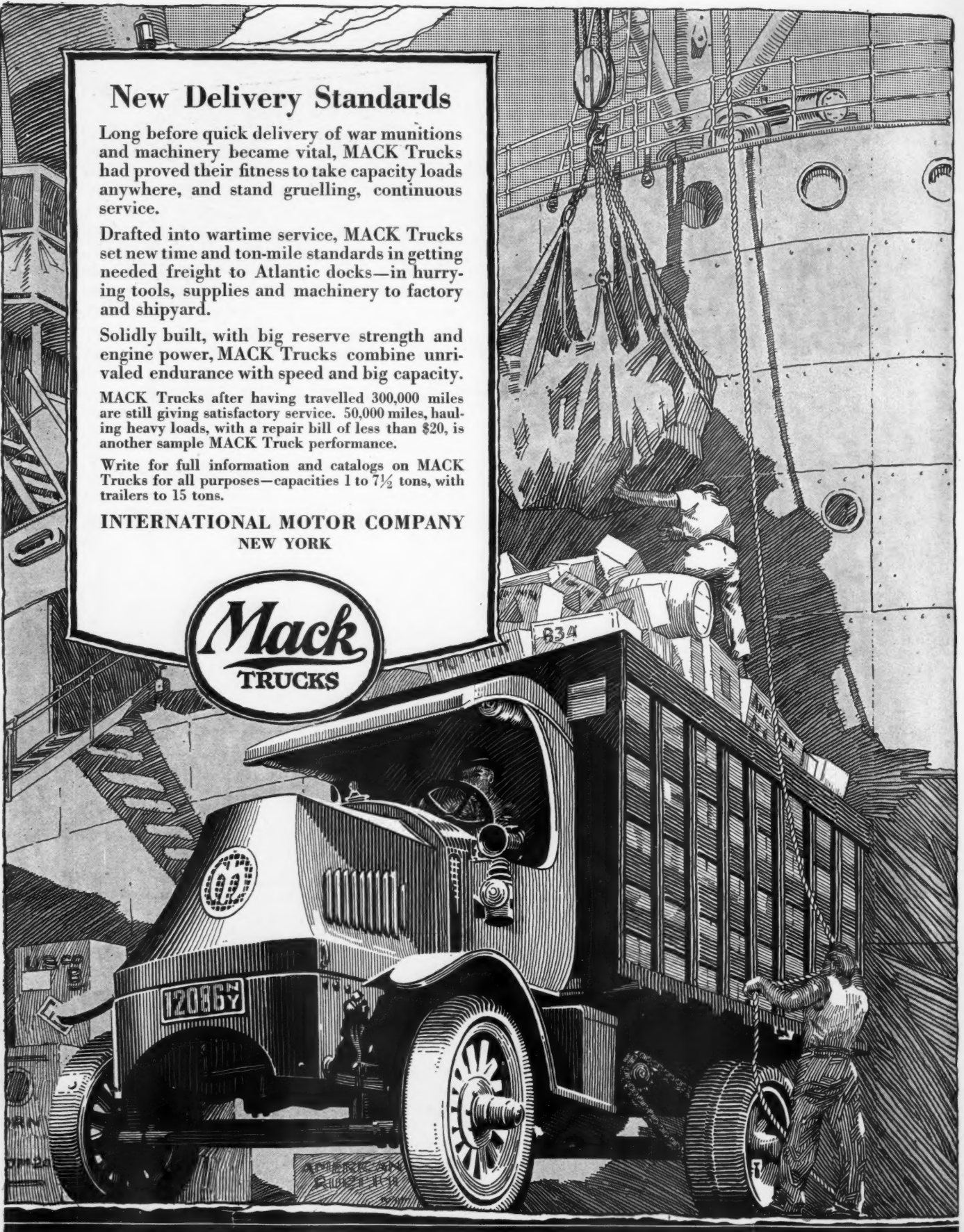
Drafted into wartime service, MACK Trucks set new time and ton-mile standards in getting needed freight to Atlantic docks—in hurrying tools, supplies and machinery to factory and shipyard.

Solidly built, with big reserve strength and engine power, MACK Trucks combine unrivaled endurance with speed and big capacity.

MACK Trucks after having travelled 300,000 miles are still giving satisfactory service. 50,000 miles, hauling heavy loads, with a repair bill of less than \$20, is another sample MACK Truck performance.

Write for full information and catalogs on MACK Trucks for all purposes—capacities 1 to 7½ tons, with trailers to 15 tons.

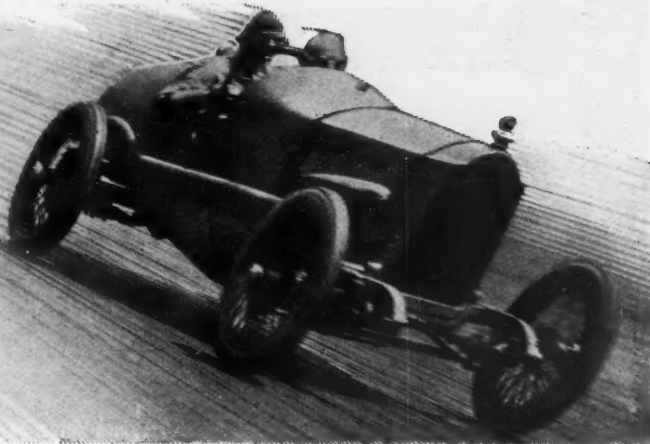
**INTERNATIONAL MOTOR COMPANY
NEW YORK**



"PERFORMANCE COUNTS"

Getting More Miles from Your Gasoline

by Ralph De Palma



"For a number of years I have been making a careful study of motor performance and fuel economy. * * *

"My work has been carried on in conjunction with the engineering departments of various well-known automobile manufacturers. The part that I have taken in various speed events has been almost entirely in connection with this engineering work. * * *

"As every motorist knows, one of the big problems of recent years has been that of economy. The fuel that we are obliged to use has gradually, yet consistently, deteriorated in quality. * *

"Practically no carburetor has been marketed for passenger cars that will handle this heavier gasoline in a manner to allow the motor to get full efficiency from the gasoline used, i.e., part of the fuel entering the motor is unused, and carbon deposits result.

"The problem confronting engineers, therefore, has been one of discovering some method whereby the gasoline could be gotten into the cylinders in a form that would insure combustion of every atom.

"In my engineering experience I never discovered a way to approximate this until I was first induced to give ECCOLENE a trial. This happened seven months ago, and I must say that the results that I have had, are the only reasons why I am issuing this statement.

"It is my sincere belief that the use of ECCOLENE will be a great boon to motor drivers. I have experimented with it in practically all types and sizes of motors. I have also used ECCOLENE in some of my racing cars. The results have always been the same—

Special—Above illustration shows Ralph DePalma in his twelve-cylinder racing car. Since the accompanying article was written, Mr. Ralph DePalma, as is generally known, won the annual Memorial Day race at Sheephead Bay, New York, using Eccolene-treated gasoline. Mr. DePalma holds all world's speed records from six minutes to six hours.

Bellevue, Ohio—New York City Test Run

A recent test of ECCOLENE was made when ten new six-cylinder cars left Detroit from the factory for New York City. At Bellevue, Ohio, ECCOLENE in proper proportion was added to the gasoline; and regardless of the fact that the motors were new and somewhat stiff, cars with ECCOLENE-treated gasoline showed a decided economy over those using plain gasoline. Following is a complete summary of results:

RECAPITULATION OF TRIP FROM BELLEVUE, OHIO, TO NEW YORK CITY, 651 MILES FROM 4-24-1918—8 A.M. TO 4-26-1918—9 P.M.

Eccolene-Treated Gasoline

CAR NO.	GASOLINE CONSUMED	MILES PER GALLON
1.....	59½	12.6
2.....	50	15.6
3.....	55	13.7
4.....	53	14.2
5.....	51	14.8
Average Mileage per Gallon.....	14.2	
Gasoline Consumed.....	268½ Gals.	

Cars Using Plain Gasoline

CAR NO.	GASOLINE CONSUMED	MILES PER GALLON
6.....	75	10
7.....	62½	12
8.....	56	13.4
9.....	68½	11
10.....	64	11.5
Average Mileage per Gallon.....	11.5	
Total Gasoline Consumed.....	326 Gals.	

Gasoline saved on the trip by the use of Eccolene—58 Gallons.

Increased mileage—23.4%.

Cost of Eccolene, 3½ Qts., at \$7.00 per Gallon—\$5.83.

Saving in Gasoline, 58 Gals., at 26¼¢—\$15.25.

Saving less cost of Eccolene—\$9.42.

Pistons of cars using Eccolene were almost free from carbon; the others were considerably carbonized.

freedom from carbon—clean spark plugs at all times—greater acceleration—motor performance better in every way; and with carburetor perfectly adjusted there is a worthwhile saving in the cost of gasoline."



Ralph De Palma

What is ECCOLENE?

ECCOLENE is a scientific compound composed of several oils, and is added to gasoline in a proportion of one ounce to five gallons, with the average four-cylinder car, and two ounces to five gallons, with cars of six or more cylinders.

Through a complex process termed decolization, ECCOLENE makes gasoline vapor more thoroughly combustible under compression in the motor cylinders. By decolizing the gasoline vapor ECCOLENE transforms a large proportion of the carbon-forming elements; at the same time it assists the process of lubrication.

Thus we get a vapor that leaves no waste—no residue—practically every atom of the gasoline is burned. And the elements in the fuel that would ordinarily be wasted are converted into power for driving your car.

Best of all, ECCOLENE not only saves gasoline, but also reduces carbon—increases power—reduces overheating—lessens smoke and noise, and produces better acceleration.

Not an Explosive

ECCOLENE is positively non-volatile, and should be compared in no way to picric acid or ether—two highly powerful volatiles which render gasoline much more explosive, and are also harmful and dangerous to use. ECCOLENE is positively non-injurious to any metal. Test ECCOLENE with litmus paper and prove for yourself that it contains not even a trace of acid.

Results are Guaranteed

We positively guarantee that ECCOLENE will give you a better performing motor—reduce carbon troubles, and save gasoline. We guarantee the increase in economy to be at least 25%.

Your dealer, garage or supply store carries ECCOLENE and will recommend it to you. If for any reason you cannot buy ECCOLENE conveniently, fill out coupon and secure your can by mail prepaid.

	Price
One Quart	\$2.00
One Gallon	7.00

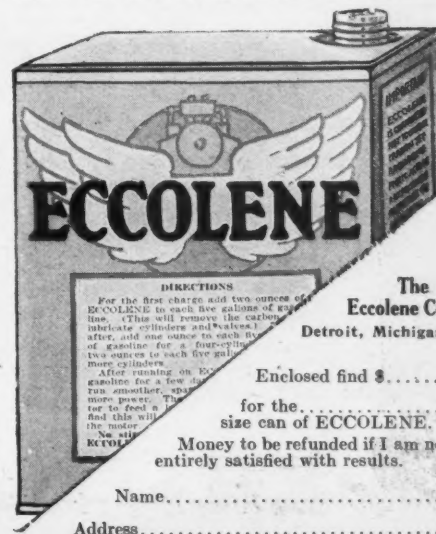
For the convenience of truck fleet owners, ECCOLENE is also put up in five-gallon cans.

SALES DEPARTMENT

EDWARD A. CASSIDY COMPANY, Inc.
281 Madison Ave., New York City

THE ECCOLENE COMPANY, Manufacturers
Detroit Michigan

Dealers: Write or wire for our money-making proposition



Dealers, Supply Stations and Garages will find ECCOLENE a most profitable specialty. Write or wire for prices and terms.

Enclosed find \$.....

for the..... size can of ECCOLENE.

Money to be refunded if I am not entirely satisfied with results.

Name.....

Address.....



"The Motor Truck is One of Our Biggest War Aids." —WOODROW WILSON

Acason
THE OWNER FIRST
TRUCKS

FARSEEING Dealers are looking into the possibilities of the Acason truck franchise.

The product itself, the organization behind it—their reputation for fairness, intelligent co-operation and full comprehension of the Dealer's problems are all up to the standard YOU desire.

Every Automobile Dealer should sell such a truck as the Acason—NOW more than ever before.

As a sound business man you owe it to yourself to take action and place yourself where changing conditions in the automobile industry will not work a hardship.

Remember—the Government looks with favor on the Automobile Dealer who sells an essential product.

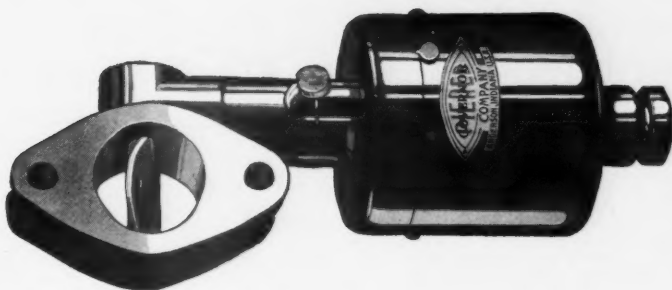
1½ to 5 Ton Capacities Heavy-Duty Tractors

ACASON MOTOR TRUCK COMPANY

429-435 Brooklyn Avenue

Detroit, Michigan

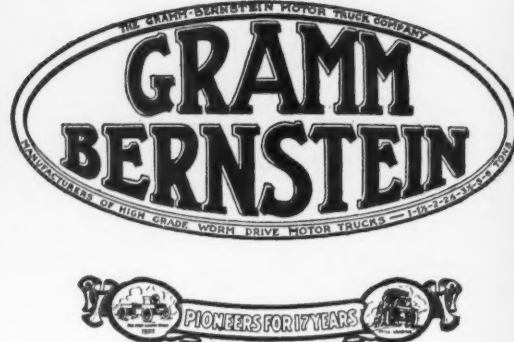
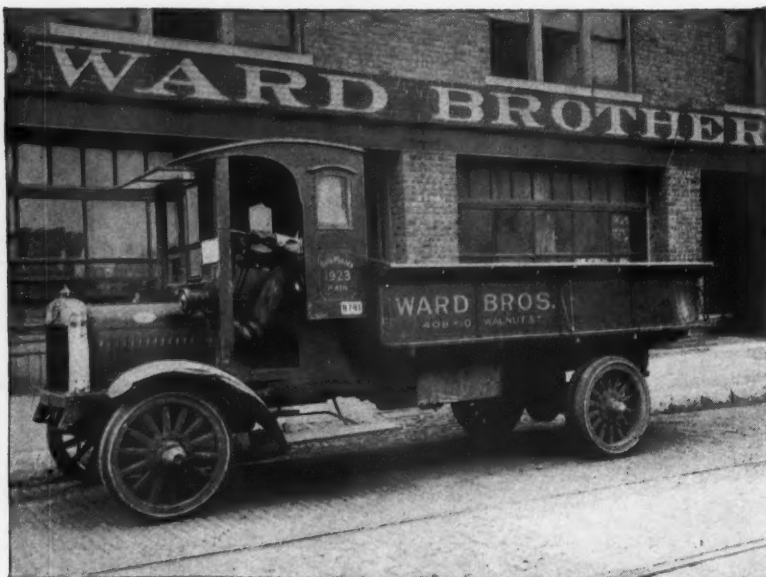
THE OWNER FIRST



PIERCE GOVERNOR

The Truck Industry's Chosen Standard





Ward Brothers of Kansas City, Missouri

have used their 2-ton Grammm-Bernstein truck over a year, in the hard service of handling produce in city markets.

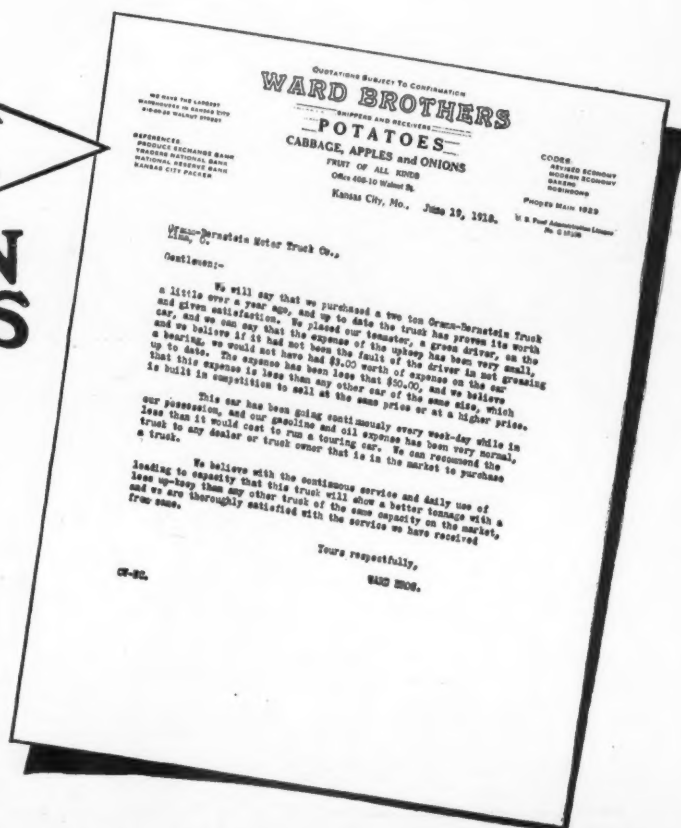
In continuous service, and with a wholly inexperienced driver, the results are such that they write, "this truck will show a better tonnage with less upkeep than any other truck of the same capacity."

NOTE THEIR SATISFACTION

GRAMM-BERNSTEIN MOTOR TRUCKS

in over a hundred lines of business are giving this same kind of unfaltering, economical service, day in and day out, year after year.

Let us send you data on Grammm-Bernstein trucks to fit your needs.



THE GRAMM-BERNSTEIN MOTOR TRUCK COMPANY, 15 Gramm Blvd., LIMA, OHIO



**DANGER
BAD
ROAD**



NON-BURN ASBESTOS BRAKE LINING

THE one biggest thing in a brake lining is its Asbestos. And to go a step further a brake lining's dependability is all a matter of asbestos fibre. For, like wool or cotton, fabric woven from asbestos depends for strength and long wear on the length and strength of individual fibres—and on the skill in their conditioning and weaving.

True, you can't measure or test fibre yourself. But in NON-BURN it's done for you. A half

century's experience has taught us to set apart, from our big annual tonnage, just the fibre that efficient brake lining service demands. That same experience backs up its fabrication. When you're handling NON-BURN, you're selling a safe, strong, tough lining made at Asbestos Headquarters—by Johns-Manville.

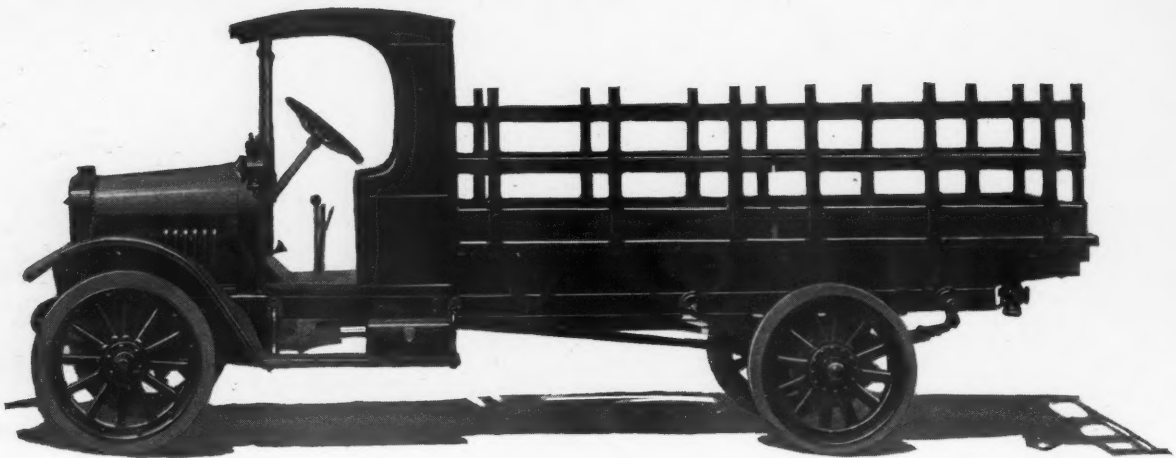
Under the Johns-Manville sales policy, NON-BURN is sold only through jobber-dealer channels. Ask for details.

H. W. JOHNS-MANVILLE CO. 10 Factories—Branches in 61 Large Cities NEW YORK CITY

**When you think of Asbestos you think of
Johns-Manville**

WOLVERINE

TRUCKS



A Sturdy, Durable 1½-Ton Model That Clinches Sales

This Wolverine 1½-ton, proved-quality, ever-capable and serviceable truck is a real sales clincher, because it's built to give satisfaction. Truck buyers in your territory will be quick to recognize the fact that a 1½-ton Wolverine is a good business investment. Its mechanical construction is so perfect that maintenance-cost is unusually low.

A reliable Continental motor supplies maximum power at minimum cost. The Wolverine is equipped with a

starting and lighting system. Other features of construction are a Special Cast Shell Radiator; Russel Internal-Gear Drive Axle; heavy drop-forged front axle, equipped with Timken bearings; irreversible worm and gear Steering Gear; a heavy 5" channel section frame and heavy-duty artillery type wheels. Wheelbase, 140".

Here's a truck that's a business-getter and one that gives long, economical and satisfactory service. We are still able to accommodate a few live dealers in territories where we are not represented. Write for proposition.

Round-Up "Light Delivery" Sales With the American

The American is built for light delivery work only, designed and constructed to stand up under severe usage. Retail dealers, small commission merchants, farmers and others will be quick to see the advantages this American model has over "converting units" and other "unit-made" trucks. We want dealers to sell this car and "Americanize" their territories in the 1500-pound delivery truck class. Our proposition is liberal and offers a wonderful opportunity to get a profitable business.

Write



3/4-Ton
Model F

THE AMERICAN COMMERCIAL CAR COMPANY

Gratiot Avenue and Detroit Terminal Railroad

Detroit, Michigan



When is a Motor Truck "Worn Out?"

If a motor-truck ever went to pieces all at once, like the Deacon's famous "one-hoss shay," the answer would be easy.

But that isn't the way vehicles "wear out."

It's a little part here, and *maybe a big part there*, that lets go, till some day the owner decides that upkeep is too high for profits. It pays better to buy a new truck than to rebuild the old one.

Therefore the useful life of a truck is the life of its working parts—*especially the parts that cost the most and work hardest.*

Why Axles Should be Built to Outlast the Other Parts of the Truck

The Axles represent a large part of the initial cost.

The Axles combine more different important functions than any other units: They carry the load, and they are largely responsible for driving, steering and stopping the load.

Axle breakdown means danger, loss, delay and expense.

You can't afford it—even after a truck has run a hundred thousand miles.

Axles that outlast the rest of the truck usually mean trucks that do not "wear out" till they have more than paid for themselves.

Timken-Detroit Axles DO Outlast the Rest of the Truck

Time and again Timken-Detroit Axles have been salvaged for use under another truck when almost all the other parts could only be sold for junk.

More than once the buyer of a "worn out" truck has re-sold the Timken-Detroit Axles for *more than he paid for the whole truck*—because the original owner didn't realize their commercial value.

Many trucks returning from the Mexican border had their engines "shot to pieces" by terrific service, but the worm-drive axles were good enough for years more of satisfactory service.

When you buy a truck be sure the resale value is *built into it*—and even after it is "worn out" it will return one more dividend in the value of its axles.



THE TIMKEN-DETROIT AXLE COMPANY
Detroit, Michigan



Oldest and largest builders of front and rear axles for both motor cars and trucks.

TIMKEN-DETROIT

FRONT and WORM-DRIVE REAR AXLES

For Efficient COMMERCIAL Haulage

SHELDON WORM-DRIVE REAR AXLES

After all, uninterrupted performance is the acid test by which trucks are judged, and what more vital requisite to good performance can there be than a rear axle capable of meeting every requirement?

The Rear Axle must bear not only the bulk of the load, the dead weight strain, but all the other strains and stresses imposed by road conditions and through it all—must function smoothly and continuously.

In Sheldon Worm-Gear Rear Axles, Truck users have found that every possible demand of service has been foreseen and fully met, and that it is pre-eminently the axle of satisfying performance.

SHELDON AXLE & SPRING CO.

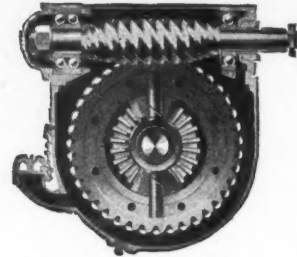


Makers of Springs and Axles for Heavy-Duty Service for more than Fifty Years



WILKES-BARRE

PENNSYLVANIA



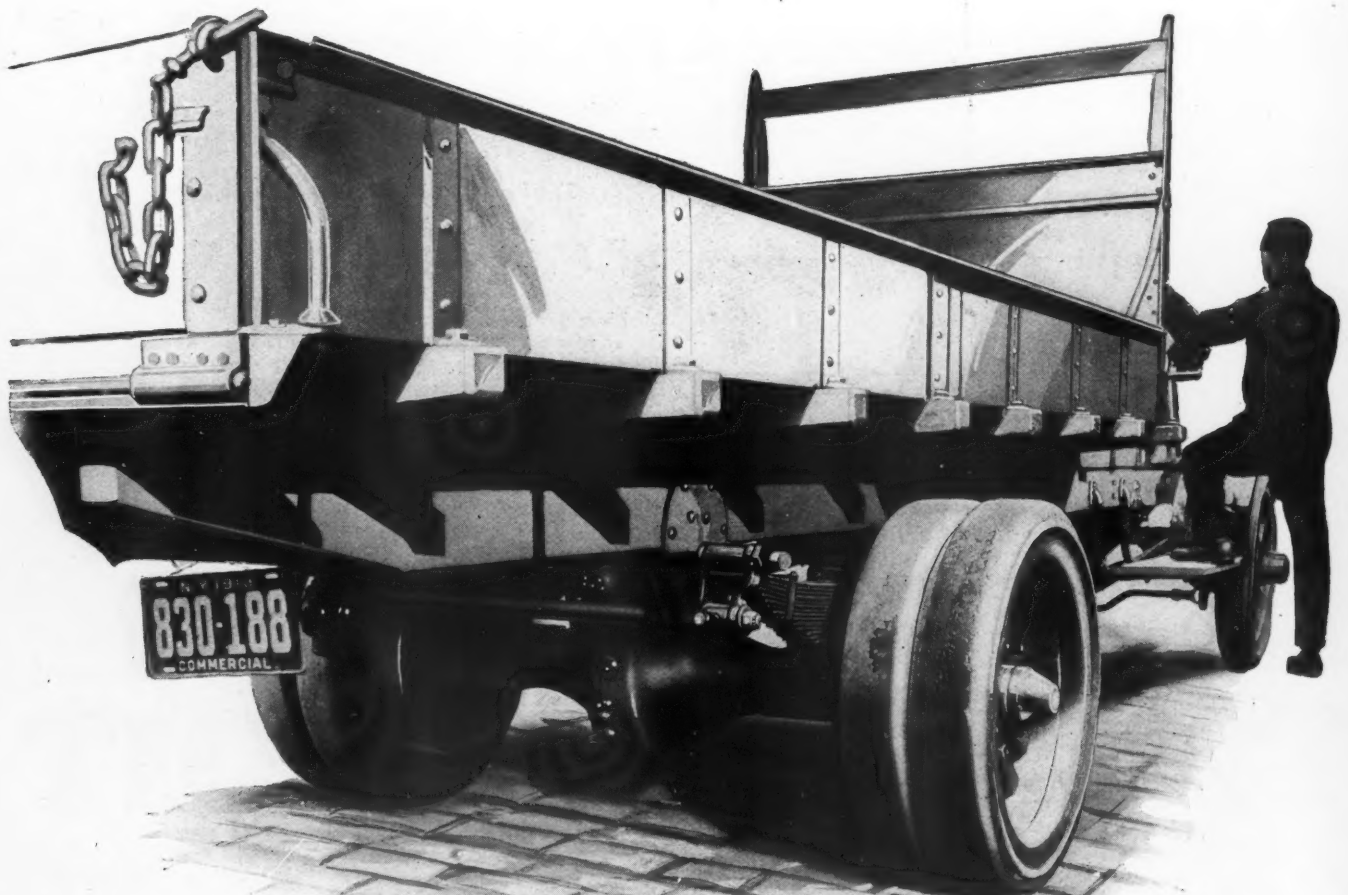
THE WORM DRIVE

used in the Sheldon Rear Axle is the "straight" or David Brown type—the most durable and silent in operation, as well as the most simple in construction.

The worm is forged from the finest steel, heat-treated to wear-proof toughness. The worm gear is made of a special formula bronze.

The accuracy with which the carrier housing casting is machined to receive the gear, the differential, the worm and the generous annular ball bearings which carry it, makes any further adjustments unnecessary.

The lubrication system is simple and thorough.



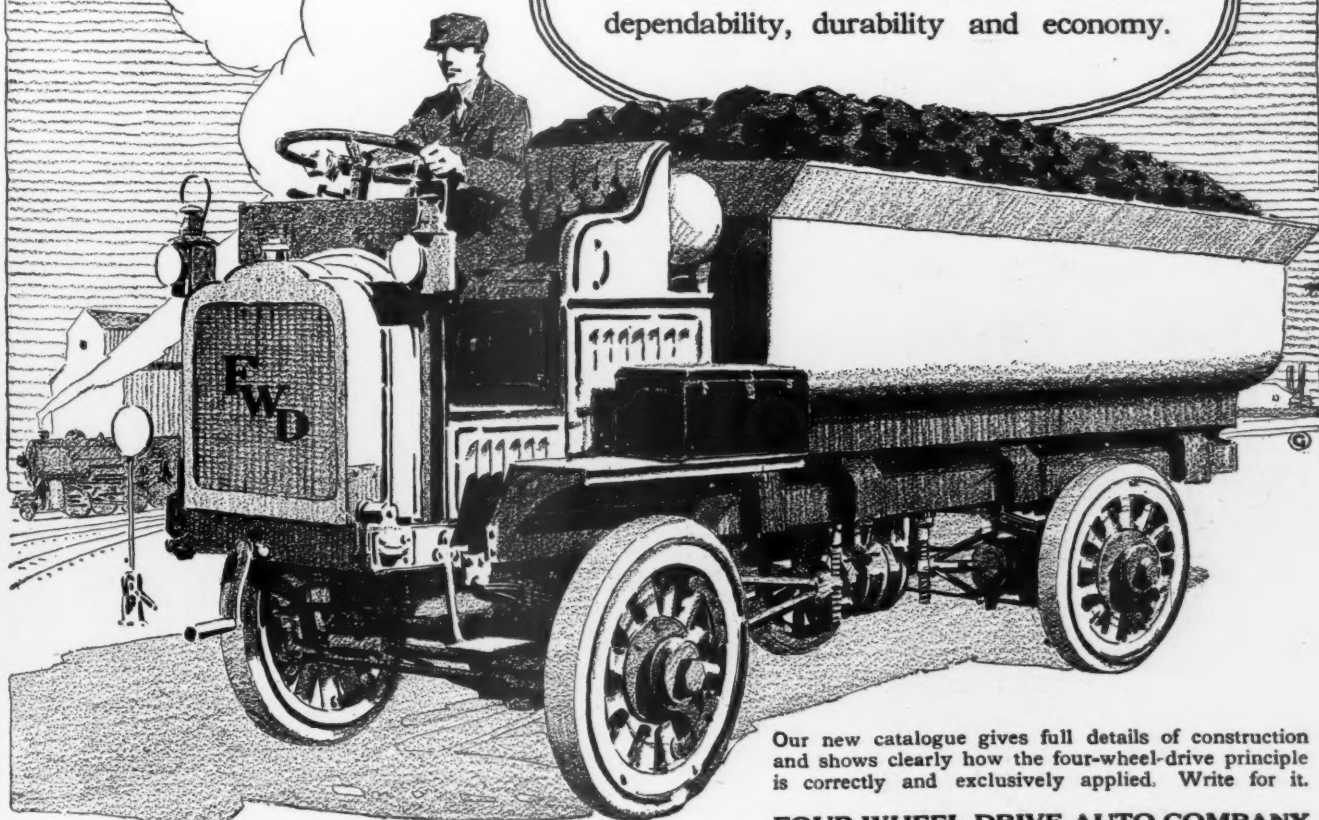
Power

THE tremendous reserve of power, sufficient to master any emergency under maximum load, whether on smooth, slippery pavement or rough country road, is due to our correct and exclusive application of the four-wheel-drive principle.

Every wheel is a driving wheel in

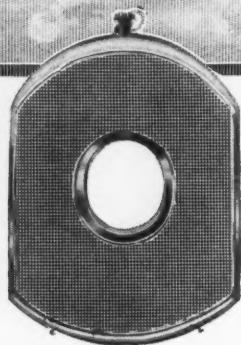
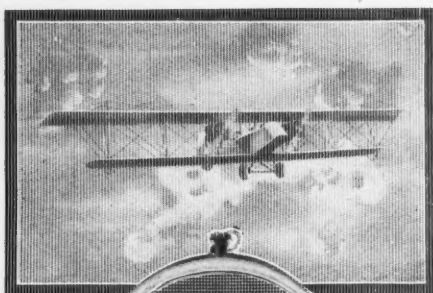
FWD Trucks

That is one reason for their extreme dependability, durability and economy.

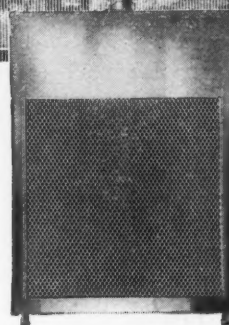
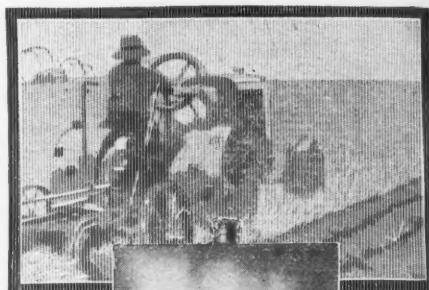


Our new catalogue gives full details of construction and shows clearly how the four-wheel-drive principle is correctly and exclusively applied. Write for it.

FOUR WHEEL DRIVE AUTO COMPANY
 Department E Clintonville, Wisconsin



FEDDERS RADIATORS



Serving America on *All* Fronts

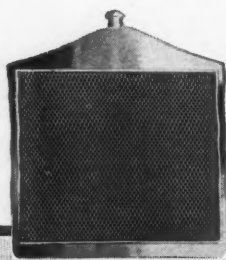
On the Farms, in the Industrial Centers, and on the Battlefronts of Europe, Fedders Radiators are everywhere—and doing their bit.

Because their fundamental principle of design is the most efficient of all, Fedders Radiators alone are easily adaptable to service on any type of engine-driven vehicle—Tractors, Trucks, Passenger Cars or Aeroplanes.

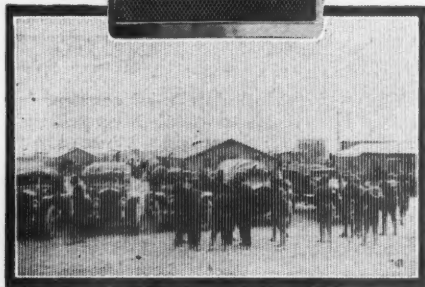
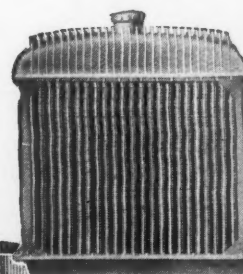
That Fedders serves best is proven by the fact that most of the best Vehicles are Fedders-equipped.

Let Fedders help solve your Radiator problems.

Fedders Manufacturing Co., Inc., Buffalo, N. Y.



FEDDERS RADIATORS





ALL-AMERICAN

TRUCK CO
CHICAGO



\$1295

A Giant In Strength
A Master In Performance
Magnificent In Appearance



THE ALL-AMERICAN ACHIEVEMENT.

All-American Truck, designed by engineers who have been educated in modern motor truck requirements, by experience gained through close application dating back to the very inception of the industry; men who played a prominent part in the production of motor trucks to their present high standard of efficiency and are leaders in commercializing the business.

This is the latest addition to their long line of successes.

The ALL-AMERICAN STANDARDIZED SUPER-TRUCK conceived and built by these able men has been tested and approved.

THE ALL-AMERICAN IDEA

The ALL-AMERICAN TRUCK COMPANY founded on this typical "Yankee" idea, and every operation of the Company—every piece of material that goes into the trucks, from the radiator to the tail-lights, will be a practical demonstration of this splendid patriotic principle.

In our factory, *only American citizens will be employed; only parts that are made in America will be used in the manufacture of our trucks.*

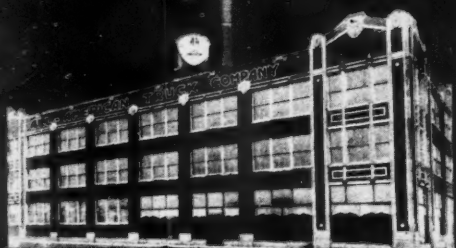
In building our dealers' organization, *only naturalized American citizens will be invited.*

YOU can offer that list of truck prospects in your territory a 1-ton truck at half what they will have to pay others. You can offer them a proved truck, for the All-American Super-Truck has the benefit of the United States war experience in its design and it has had the severest tests before being placed on the market.

Your territory, according to reliable estimates, will buy one new truck for every one now in service. Figure the proportion of that business to which you are entitled with a truck that sells for half, and multiply it by our discount and you can visualize the money you can make this year with this wonderful line.

For the period of the War All-American Super Trucks will be sold for Service only in the essential industries as defined by the War Industries Board.

For such essential industries we are in position to make immediate deliveries.



THE ALL-AMERICAN ALL-STAR PERSONNEL

R. H. SPEAR
President

R. H. Spear, organizer of the Scripps-Booth Company of Detroit, Michigan, an unparalleled success under his management making shipments aggregating nearly \$2,000,000 within eleven months following shipment of the first car.

Under his scientific management and broad views, the Gramm-Bernstein Company of Lima, Ohio, made remarkable strides.

Well known author on business organization and scientific management.

ROBERT J. SUTTON

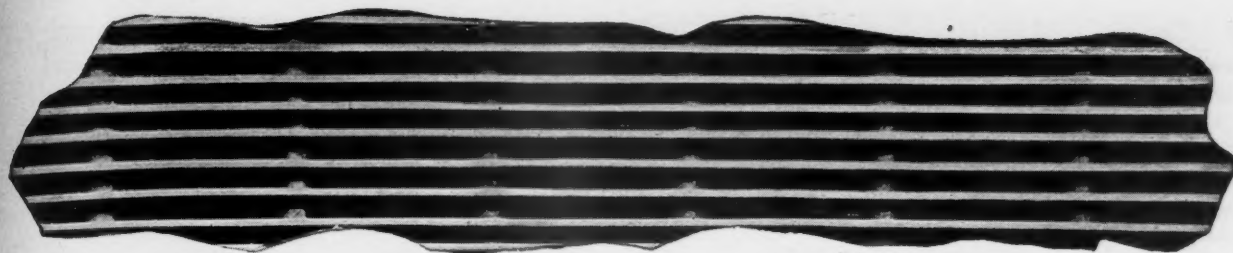
Vice-President in Charge of Manufacturing

Robert J. Sutton, formerly production manager with the Four-Wheel Drive Company of Clintonville, Wisconsin. As production manager Mr. Sutton built the well known F. W. D. Truck for U. S. Government use in Mexico and British Government use on the Western Front.

GLENN W. BARDEN

Treasurer

Glenn W. Barden, for five years Secretary and Treasurer of the Kelly-Springfield Motor Truck Company of Springfield, Ohio. Mr. Barden's connections also included Price, Waterhouse & Company, the well known firm of Certified Public Accountants and



Tractor Radiator Types

There is less weight to the continuous fin tubular type radiator when cooling capacity is considered

Per cubic inch of core and per pound of metal the continuous fin tubular type radiator has a greater cooling capacity than any other tubular type.

A free passage of air is allowed by the open framework of the core. The construction of this type of core is much like that of the frame of a modern skyscraper. It is a network of braces.

There are two main parts—the horizontal fins, and the vertical tubes. Each serves its own particular function in addition to that of bracing the other.

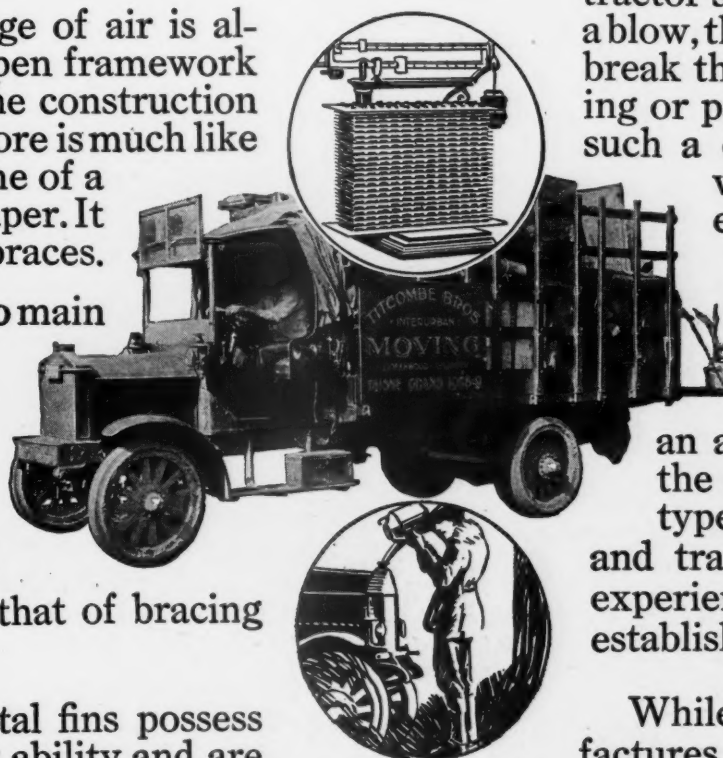
The horizontal fins possess a great cooling ability and are so built, with strong steel wires along their front edges, that they help to absorb the stress of bumps.

On account of the interlacing of

the horizontal fins and the vertical tubes this type of core is capable of resisting the many shocks and blows that are bound to occur in truck and tractor service. To do damage a blow, therefore, must actually break the radiator frame casting or penetrate the core. In such a case, however, repair work is simple and easily done.

Summing up the distinctive features and advantages there at once is recognized an absolute superiority of the continuous fin tubular type of radiator for trucks and tractors. Long years of experience has thoroughly established this fact.

While this company manufactures radiators of all types—both tubular and cellular—our efforts are being exerted to point out to engineers the superiority of the continuous fin tubular type for truck and tractor service.



McCord Manufacturing Company, Inc., Detroit, Michigan

Save the Thoughtless Dollars

"I got the sweetest hat today. And, my dear, of course, I didn't really need it, but—"

* * * *

"What if it is only a few blocks? Here, taxi!"

* * * *

"I know I'd feel a lot better if I ate less, but I simply must have a big order of—"

* * * *

Over there in the Picardy mud, pock-marked with significant craters and "plum-caked" with unspeakable things that once were men, our soldiers can't hear all that some of us are saying. Good that they can't, isn't it? It wouldn't make it any easier to stand firm against those blood-crazed, grey hordes who come on wave after wave because they believe their Kaiser is "God's anointed shepherd of the German people."

* * * *

It isn't that we Americans are a selfish people. We have simply been thoughtless.

Money is needed to win this war—let's give it. So far, we have been asked only to lend—to lend at a good round 4% interest. Turn your THOUGHTLESS dollars into War Savings Stamps.

NATIONAL WAR SAVINGS COMMITTEE,
WASHINGTON



Contributed through Division of Advertising

United States Gov't, Comm. on Public Information

This space contributed for the Winning of the War by

THE COMMERCIAL CAR JOURNAL

NASH TRANSPORTATION *Saves Time*



"THE Philadelphia 'Public Ledger' carries two columns of advertisements of daily motor truck express service between Philadelphia and New York, with tri-weekly services to smaller cities. Regularly, every day, 640 motor trucks carry freight on schedule on the public roads between New York and Philadelphia."

—Collier's Weekly.

A LARGE manufacturing institution such as Nash has a double responsibility in helping to win the war. Our first duty is to produce whatever the Government requires of us.

Government needs have first call upon our manufacturing facilities.

Second in importance is the manufacture of Nash products for commercial consumption to whatever extent conditions make possible.

The value of high-grade Trucks and Passenger Cars in this emergency has been strikingly demonstrated.

They are essential to keeping the industrial machinery working at top speed.

Motor transportation is proving a potent factor in solving transportation problems, conserving man-power and adding generally to the nation's efficiency by the saving of time and energy.

Nash Passenger Cars—5-Passenger Car, \$1,490; 4-Passenger Roadster, \$1,490; 6-Passenger Sedan, \$2,250; 4-Passenger Coupe, \$2,250; 7-Passenger Car, \$1,640; Nash Trucks—One-Ton Capacity, \$1,650; Two-Ton Capacity, \$2,175; Nash Quad, \$3,250.

The Nash Motors Company, Kenosha, Wisconsin

Manufacturers of Passenger Cars and Trucks, Including the Famous Nash Quad

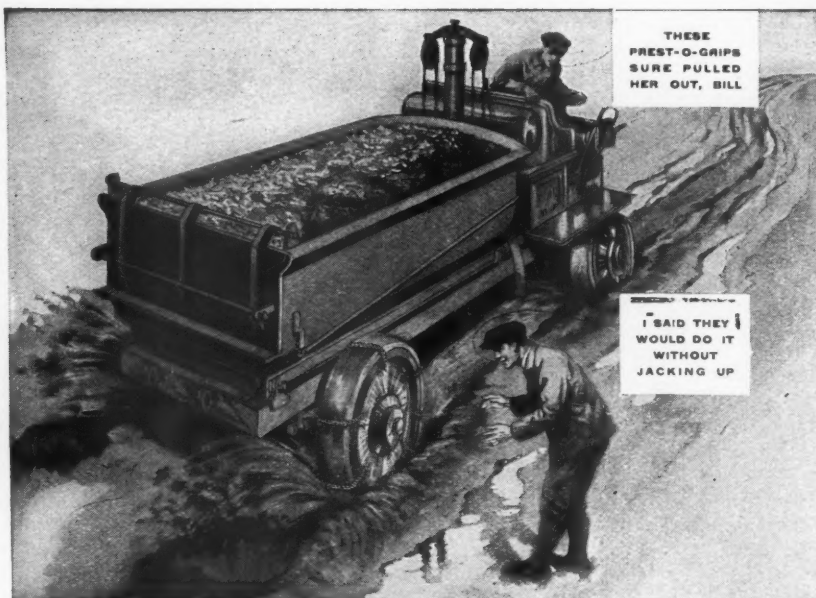
The Nash Motors, Limited, Toronto, Ont., Distributors of Nash Cars and Trucks for the Dominion of Canada

NASH MOTORS

VALUE CARS AT VOLUME PRICES

Out of the Slough of Despond with *Prest-O-Grip*

Anti-Skid Chains for Solid Tires



FALL rains will soon be here and many a motor truck will be hopelessly bogged on a miry road. The big, smooth tires will be utterly unable to grip the soft mud and pull the heavy truck out. She'll be stuck, all right. You've seen it a hundred times.

Yes, many a driver will be deep in the slough of despond, and will spend valuable time jacking out his truck, when every ounce of valuable manpower ought to be employed in useful and productive work.

Don't let your trucks get bogged. See that everyone of them is equipped with



Prest-O-Grip

Anti-Skid Chains for Solid Tires



Then they will safely and surely plow through the muddiest ruts and the deepest snow.

But be sure to get Prest-O-Grips—the only anti-skid device for solid tires having the two patented lock-links here illustrated. These lock-links excel any other device for quickness of attaching and detaching, simplicity and safety. They will not rust. Never any danger of becoming detached—as there is with open-hook devices.

*Ask for new and interesting Prest-O-Grip booklet
Prest-O-Grips are sold through leading jobbers*

The Rowe Calk & Chain Company
Plantsville, Conn.

Standard



Motor Trucks

THE name "Standard" signifies inherent quality. Every part used in Standard Trucks is standardized, and of a quality that assures efficient service. There are higher priced motor trucks sold, but none that give buyers greater satisfaction. These price and quality facts are of tremendous value to dealers, because in Standard Trucks they can offer prospective truck buyers more for the money than is obtainable in other makes.

Continental Motors, Timken-Detroit Worm-Drive Axles, Timken Bearings, Shebler Carburetors, Eisemann Ignition Systems, Spicer Joints, and Pierce Governors are links in the Standard line of standardization—parts that are used in trucks made for the U. S. Government. Every detail of construction and design bespeak the sturdiness and reliability of the trucks.

A Truck for Every Purpose

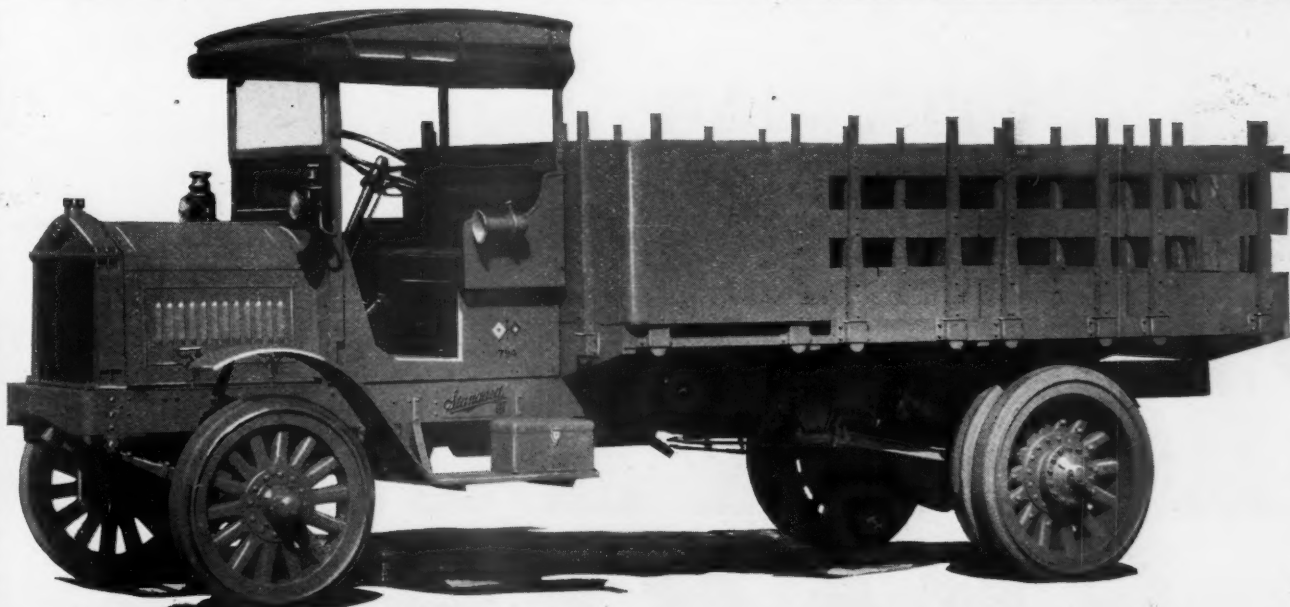
The 2 ton, 3½ ton, and 5 ton STANDARD can be fitted to your business, for the principles behind the manufacture of all STANDARD MOTOR TRUCKS are principles based upon seven years' experience—not theory. Every detail has been carefully studied out under all conditions of road and load, and tested thoroughly to prove the correctness of each.

We can accommodate a few more dealers who can sell a high-grade line and who recognize an opportunity when they see it. You can sell Standards to the truck-wise in your territory because here's a line that measures up to the most exacting demands. Write for information.

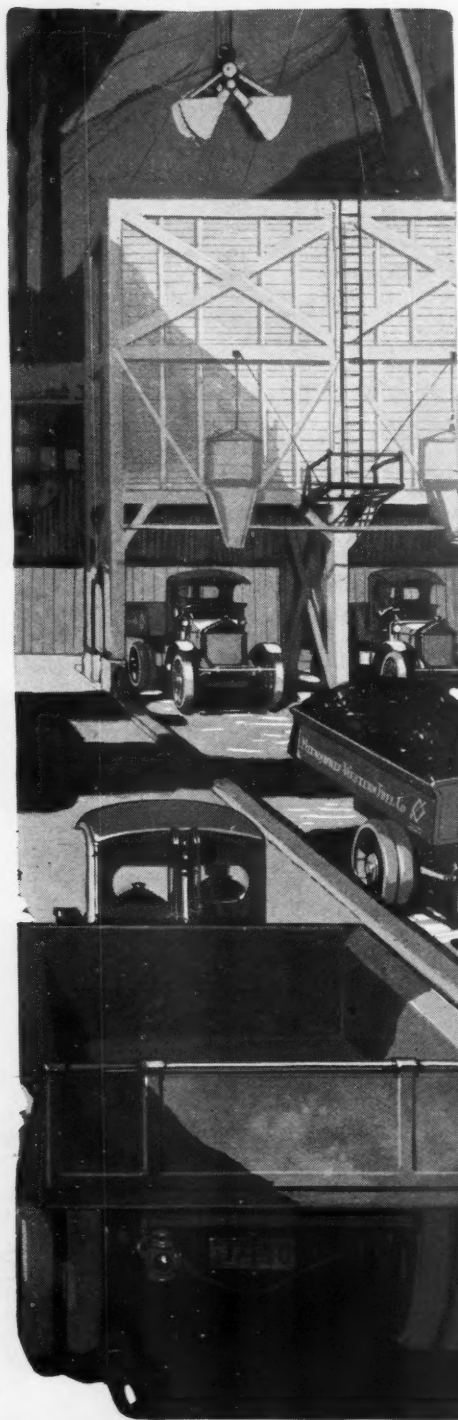
STANDARD MOTOR TRUCK CO.

315-327 Bellevue Avenue

Detroit, Michigan



Fleet Performance



The Maker

Pierce-Arrow Motor Car Co., Buffalo.

The User

Milwaukee-Western Fuel Co., Milwaukee.

The Bearings

Timken Bearings on front and rear wheels.

The Record

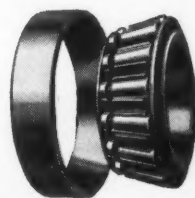
Says Mr. Ardern, vice-president of the Milwaukee-Western Fuel Co.: "About seventeen or eighteen years ago we equipped one coal wagon (horse-drawn) with Timken Bearings. This demonstrated to us how real and vital is that thing known as 'Timken Quality.' Today we are operating a fleet of twenty 5-ton Pierce-Arrows, all equipped with Timken Bearings in front and rear wheels."



THE TIMKEN ROLLER BEARING COMPANY
Canton, Ohio



Do you *know* just what it costs to operate your trucks? If not we can refer you to a simple, practical and economical way of keeping an accurate and complete record of truck maintenance.



TIMKEN BEARINGS

FOR MOTOR CAR, TRUCK & TRACTOR

U.S. Motor Trucks



After the Sale - *then what?*

You men who sell motor trucks know that often the profits from a sale are eaten up by the service you must render after the sale is made. It is the best indication whether or not the truck is right from the standpoint of design and workmanship.

To demonstrate the soundness of U. S. design and construction, we cite the case of Fred C. Evers, Cleveland distributor for U. S. Motor Trucks.

Mr. Evers wanted to handle a line of trucks. Before making a decision he made a thorough investigation of many trucks.

After a "first hand" investigation of U. S. trucks at the factory he decided to "take on" the U. S. The correctness of the design—the efficiency of the producing organization appealed to him.

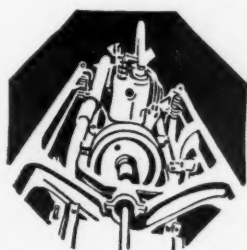
Now, after selling 14 U. S. trucks in his territory, Mr. Evers found that after five months' operation the cost of service averaged about \$1.15 per

truck. A fine compliment for Mr. Evers' judgment. A fine showing for heavy-duty trucks.

The Floating Power Plant, an exclusive U. S. feature, accounts for the low maintenance costs of the truck. It cuts fuel expense, reduces expense for repairs, and gets the maximum results from the power plant on rough ground as well as on smooth.

U. S. trucks appeal to the buyer for that reason. Today the many U. S. fleets verify this.

Wire or write for our dealer proposition if your territory is still open, and get our booklet "Why the Floating Power Plant?"



The Floating Power Plant

U. S. Motors are mounted at four points on a sub-frame and this sub-frame is mounted at three points in the main frame.

The Floating Power Plant is the most flexible of all methods of mounting a truck motor.

Worm Drive, 2½, 3½ and 5 tons

Chain Drive, 2½ and 3½ tons

The United States Motor Truck Company
Cincinnati, Ohio

G & O

Radiators

Designed and Built for
Heavy Duty Service

to Meet INDUSTRIAL
and MILITARY Truck
Requirements

Square Fin Tubular and
Diagonal Honey Comb Types

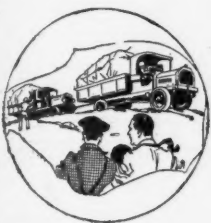
One Quality Only — the Best

Send us Blueprints

The G & O Mfg. Co.
New Haven, Conn.



DUPLEX
4-WHEEL DRIVE
11th YEAR



“Yes! Since We Bought that Duplex I’ve Been Quite a Stranger Here”

Duplex owners tell us that Duplex 4-Wheel Drive Trucks consume from one-fifth to one-half less gasoline than rear-drive trucks of similar capacity.

The 4-wheel drive principle is accountable.

Duplex Trucks make use of every drop of gasoline.

All power generated by the Duplex motor is evenly distributed to *all four wheels*—and is utilized as a *pulling and hauling force*.

Power wastage is reduced to the lowest possible minimum.

Then, too, Duplex tire mileage is high—usually 30 per cent *greater* than that of any other type of truck.

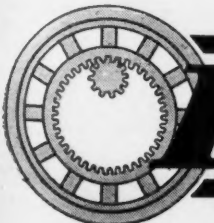
Repair and maintenance costs are *low*, because the strain is distributed over the entire truck.

Naturally, Duplex ton-mile costs are *greatly reduced*.

Figured on a business basis, Duplex Trucks pay the biggest dividends on the investment.

To Dealers—With increased production, our dealer organization is being enlarged. We have an exceptional opportunity in several cities for aggressive, established distributors. Write for our dealer proposition.

DUPLEX TRUCK COMPANY
2028 Washington Ave. Lansing, Mich.



DUPLEX

**FOUR
WHEEL
DRIVE
TRUCK**



The old way



The new way

A man should not do the work a machine will do for him

A merchant, with all his troubles, should never do the work that a machine does better and quicker.

Our newest model National Cash Register makes the records which a merchant needs to control his business. It does fifteen necessary things in three seconds.

Without the register a man cannot do these things in half an hour.

With the register, even a new clerk can do them just by pressing the keys.

Our new electric machines are as much better than old machines as an up-to-date harvester is ahead of a sickle for cutting grain.

The latest model National Cash Register is a great help to merchants and clerks.

It pays for itself out of what it saves.

Merchants need National Cash Registers now more than ever before

FILL OUT THE COUPON AND MAIL TODAY

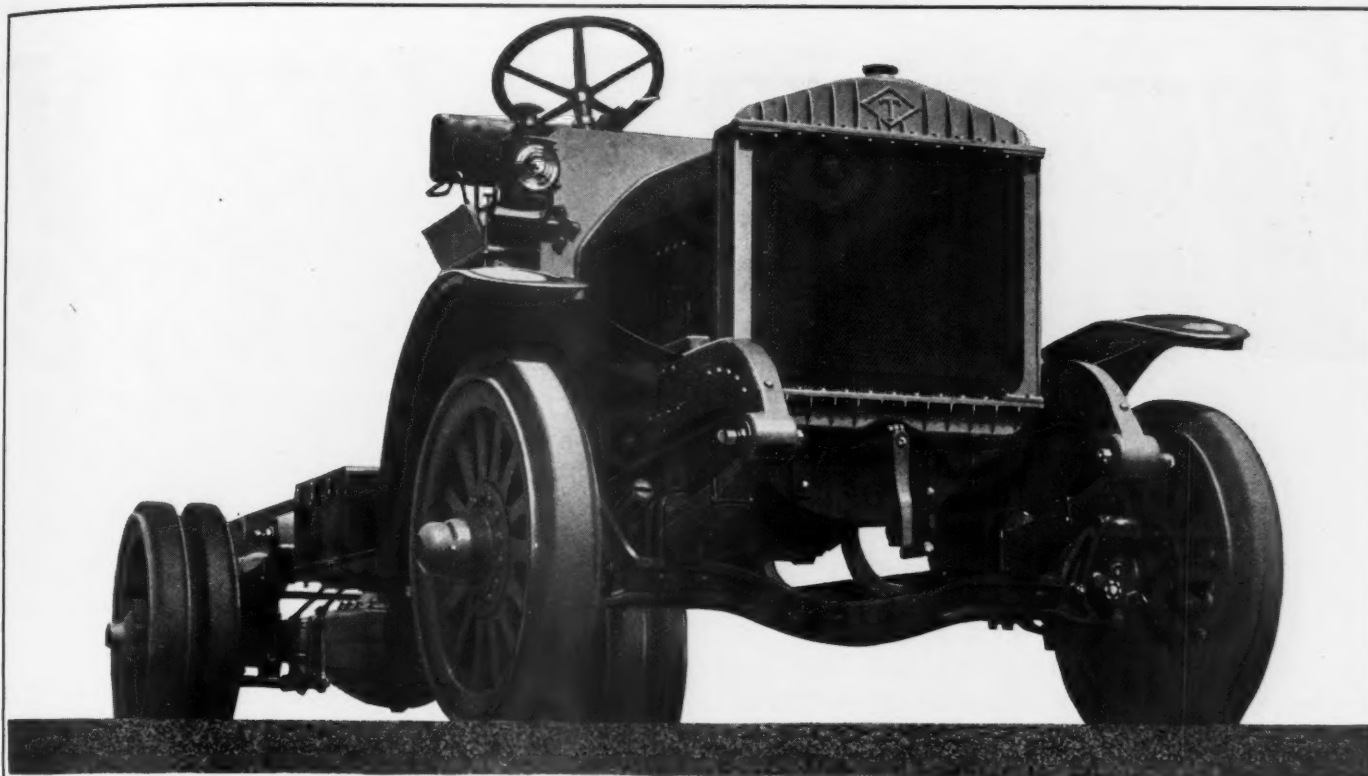
Dept. 805, The National Cash Register Company, Dayton, Ohio.

Please give me full particulars about the up-to-date N. C. R. System for my kind of business.

Name _____

Business _____

Address _____



DIAMOND T TRUCKS

A Complete Line—
Nationally Advertised
Eleven Years' Reputation
—A Liberal Contract

WE are ready now to conclude arrangements with additional dealers in some localities.

Dealers who are business men first, last and always—who are financially strong, progressive and of the high calibre which prevails in Diamond T affairs—are invited to write.

The Diamond T Motor Car Company

4509 W. 26th Street

CHICAGO, ILL.

TORBENSEN

INTERNAL GEAR TRUCK DRIVE

The Buyer Knows

"*Caveat emptor*" (let the buyer beware) may answer for horse trading, but in truck buying there is a higher law—"The Buyer Knows."

There is one word which is a greater protection to the buyer than years of engineering study—that word is "*standardization*." A part is standard when tests, trial and time have proved it to be the best of its kind—when it is endorsed by scientists, manufacturers, dealers and users—when, by reason

of the name it bears, it is *known*.

The Torbensen is the *standard* truck rear axle. It needs no defense, no explanation, no salesmanship. It is *known*—accepted—demanded.

A truck equipped with a Torbensen Rear Axle is more salable—more profitable—than a truck with an unknown axle.

It is because dealers know this that more Torbensens are in service than any other make of truck axle.

THE TORBENSEN AXLE CO., CLEVELAND, OHIO

Largest Builder in the World of Rear Axles for Motor Trucks

The wheel turns on this sturdy chrome vanadium steel spindle. It is mounted on two high-capacity roller bearings. Plenty of space for lubricant. These axle spindles are guaranteed to last as long as the truck.

Internal gears receive the power from the pinions at the ends of the jack-shaft. This is the big gear reduction. Driving at the wheel and near the rim gives Torbensen Drive great leverage. Its strong pulling-power is due to this construction.

This heat-treated jack-shaft transmits the power from the "differential" to the internal gears. Unlike ordinary drives, it carries no load whatever. This reduces strains and makes the driving mechanism long-lasting.

This differential housing is bolted to the patented shoulder around the hole in the I-Beam. It is small—adds 45 per cent. to road clearance—because it contains small gears. The principal reduction is in the internal gears at the wheels.

The I-Beam is the forged-steel backbone of Torbensen Drive. It carries *all* the load. It is *patented*—exclusive in Torbensen Drive. Fifty thousand trucks have Torbensen Drive because their makers, dealers and users insisted on the service I-Beams give.

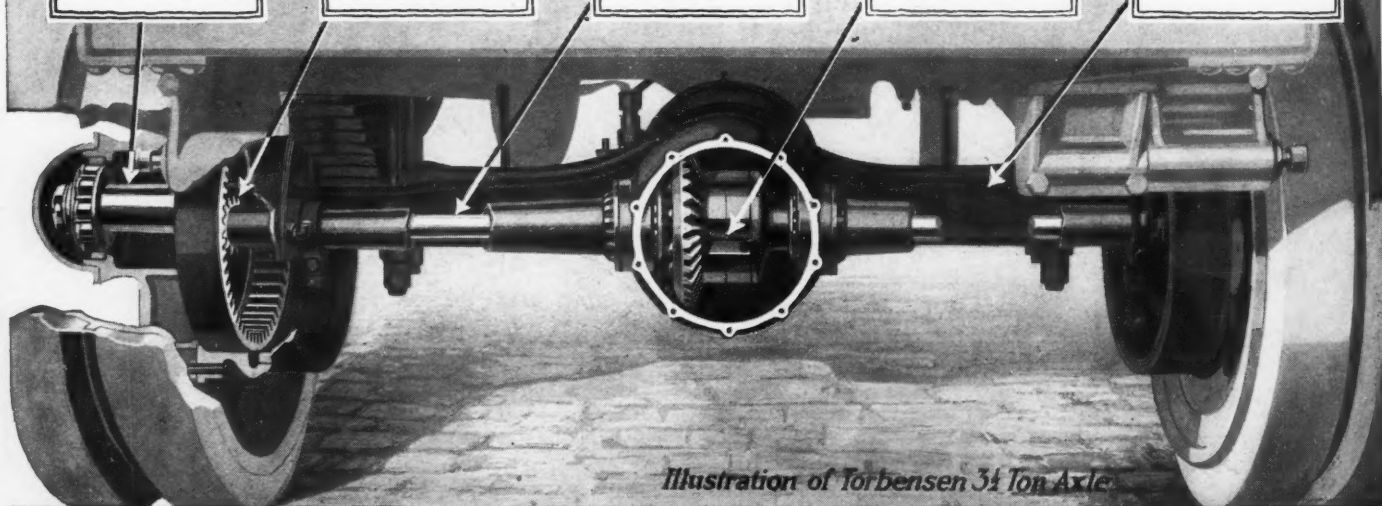


Illustration of Torbensen 3 1/2 Ton Axle

Largest Builder in the World of Rear Axles for Motor Trucks

GMC Trucks Are Helping Avert a Shortage of Fuel



Today's Short-Cut Between Supply and Demand

TO avert a threatened coal shortage the Fuel Administration must keep in motion the transportation facilities between the mines and the bins of consumers.

As in so many lines of war-time industry, transportation is the "neck of the bottle" between coal production and consumption.

In this distribution scheme GMC Trucks are taking a leading part.

With the Federal zoning system in effect short-haul traffic from the mines is being handled in many cases by GMC Trucks.

At the retail coal man's end of the line GMC Trucks are meeting the added delivery demand occasioned by

the early-buying propaganda of the Fuel Administration.

In more than 200 lines of business GMC Trucks are helping in the conservation of man power and speeding up the transportation of the world's products.

In every kind of hauling where GMC Trucks have been put to work, the high character of GMC construction has been evident. Built in six practical sizes, there is a GMC Truck to suit every need.

Every GMC is road tested.

Let Your Next Truck Be a GMC

GENERAL MOTORS TRUCK CO.

*One of the Units of the General Motors Corporation
Pontiac, Mich.*

Branches and Distributors in Principal Cities

(401)

GMC TRUCKS



THE PNEUMATIC-TIRED TRUCK IS HERE!

AND THE KELLOGG PUMP IS ON IT

KELLOGG Engine-Driven Tire Pump

BETTER—more consistent—speed over rough roads is vitally necessary *now*—that trucks may help carry the Railroads' tremendous burden.

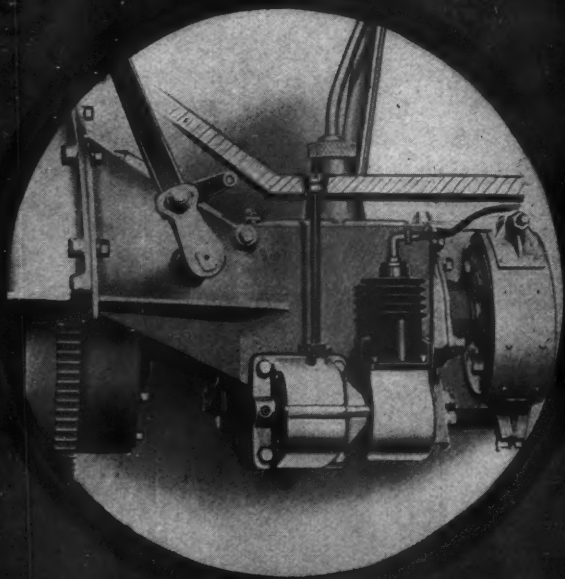
Pneumatic Tires are bringing such speed. Army Trucks at the front in France, as well as Provision-

Bearing Trucks on the roads of America, are now wearing pneumatic tires.

And naturally, to assure efficient service from their tires, these trucks are equipped with Kellogg Engine-Driven Pumps.

On 90% of all fully equipped American Motor Cars; used exclusively by over half a million motorists; first in the minds of truck manufacturer and user when they change to pneumatic tires—these are the signs indicating Kellogg supremacy, a supremacy based upon years of un-failing **QUALITY** production, the development of automotive air service to its present high degree of excellence.

KELLOGG MANUFACTURING CO.
ROCHESTER NEW YORK



**LET YOUR ENGINE
DO THE WORK**

PAMPHLET No 121 B

WITH
**MEAD-MORRISON
TRUCK WINCHES**

—
Mead-Morrison Manufacturing Co.
New York. BOSTON Chicago.

If you wish to know how heavy
hauling can be more economi-
cally performed, and time, labor
and money saved

FILL IN THE COUPON

MEAD-MORRISON MANUFACTURING CO.
E. BOSTON, MASS.
Please mail to me Pamphlet No. 121 B.
Name
Address

"the truck of continuous service"

Maccar



**Can run
without its
motor!**

Specifications

**Only the Best is
in the Maccar**

MotorContinental
IgnitionBosch
CarburetorStromberg
Transmission
Brown-Lipe
AxlesTimken
BearingsTimken
DriveWorm
Steering GearRoss
FrameParish

The Maccar can run without its motor.
A remarkable statement—but true.

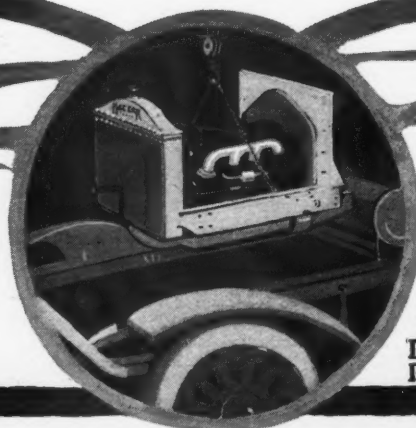
Every Maccar Truck has a demountable power plant that can be changed for the dealer's rental plant in 30 minutes.

When your Maccar needs overhauling, or something goes wrong with the power plant (where 90% of motor truck troubles arise), you simply have the Maccar dealer install his rental plant and you drive off your truck without its motor, radiator, clutch, transmission, dash-board, foot pedals or steering gear.

No other truck has this advantage.

Dealers: There's a reason why users should buy Maccar Trucks, instead of other makes. Hence Maccar Dealers get orders and reorders with comparative ease. Write us today for our dealer proposition.

MACCAR TRUCK CO.
Scranton, Pa.



**Maccar's
Demountable
Power Plant**

GARCO ASBESTOS PRODUCTS



for DEALERS and REPAIRMEN

To thousands of keen, progressive dealers and repairmen in every part of the country—to tens of thousands of motor car owners—GARCO is a synonym for sterling dependability in Brake Lining.

GARCO dealers have steadily doubled and re-doubled their orders. They have found the unfailing "Safety-Insurance" of GARCO Brake Lining led straight to bigger business—bigger profits—not only on brake lining, but on all high-class accessories.

Listed here are other GARCO Asbestos Products of equal interest to every repairman. For instance, GARCO Transmission Band Lining for Fords is made of better materials than other kinds. That it should give better service and sell easier is a natural result.

The GARCO Gaskette Roll is brand-new. In this durable, convenient carton is just the amount of high-grade gasket material you would like to use. Saves paying high prices for cut pieces—eliminates big stock.

Decide now to use the best and sell the best. Your jobber will be glad to give you prices. Write us for samples and full information if you prefer.

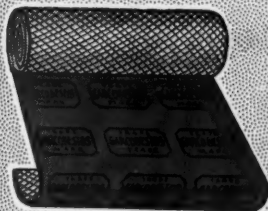
GENERAL ASBESTOS & RUBBER CO.

Main Offices and Factories, CHARLESTON, S. C.

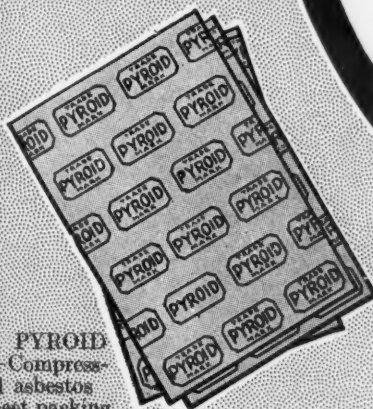
Branches and Complete Stock:
58 Warren Street, New York
106 West Lake Street, Chicago
311 Water Street, Pittsburgh



GARCO TRANSMISSION BAND LINING FOR FORDS—Complete sets with rivets or in 50- and 100-foot rolls.

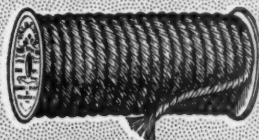


GARCOBESTOS—Wire inserted asbestos sheet packing.

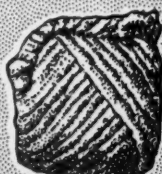


PYROID—Compressed asbestos sheet packing without wire.

VALBESTINE—Valve stem packing. Thoroughly lubricated.



GARCO SPARK PLUG YARN
1 dozen 2-oz. spools to box



GARCO Asbestos Wick and Rope. All sizes—for a thousand uses.

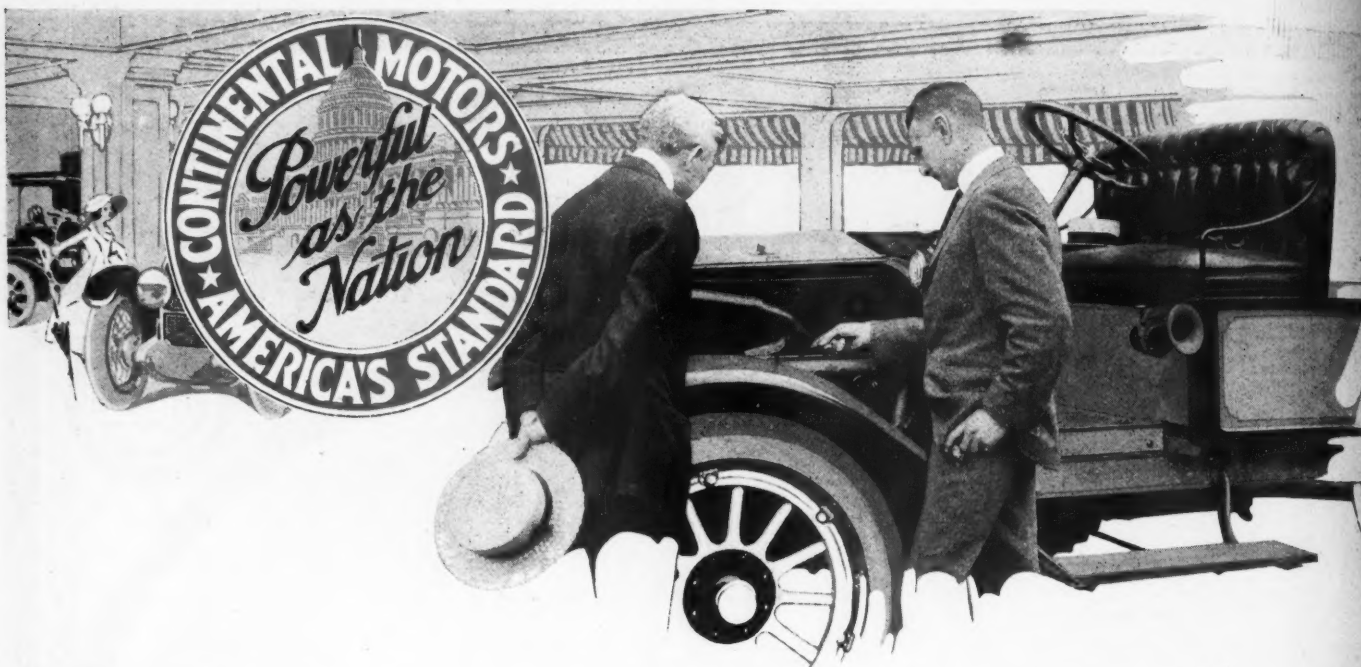


GARCO GASKETTE ROLL—1 piece of highest grade sheet packing, 18" wide, 40" long.



GARCO BRAKE LINING

LARGEST MANUFACTURERS OF ASBESTOS TEXTILE PRODUCTS IN THE WORLD



“The Whole Truck is of the Same High Quality as Its Red Seal Continental Motor”

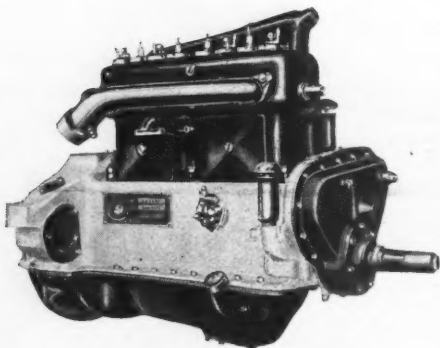
The manufacturer who uses the Continental Red Seal Motor in the car or truck he makes, is a manufacturer whose standards are high.

He uses the Continental because he knows it is a motor he can depend on—a motor embodying nothing untried, nothing experimental—a motor whose worth is a *certainty*. He knows this, because he has seen the Continental proved in hundreds of thousands of motor vehicles—of many makes and kinds—under every conceivable condition of service.

Naturally, he exercises the same good judgment in the selection of the other units that go to make up his truck. Reliability is his watchword, and he sees to it that everything in his product measures up to the high standard set by the Continental Red Seal Motor.

Today, over 160 such manufacturers use this famous motor in the cars or trucks they make. It is significant that among these are found many of the leaders in the motor vehicle industry. It is equally significant that the dealer in Continental-equipped vehicles is usually a very successful one.

Look for the Red Seal (shown above) on the motor in the truck you buy. It's your guarantee of motor quality—as well as your assurance of a good truck.



*America's Standard Truck Motor.
Look for the Red Seal Nameplate*

CONTINENTAL MOTORS CORPORATION

Offices:

Detroit, Michigan

Factories:

Detroit—Muskegon

Largest Exclusive Motor Manufacturers in the World

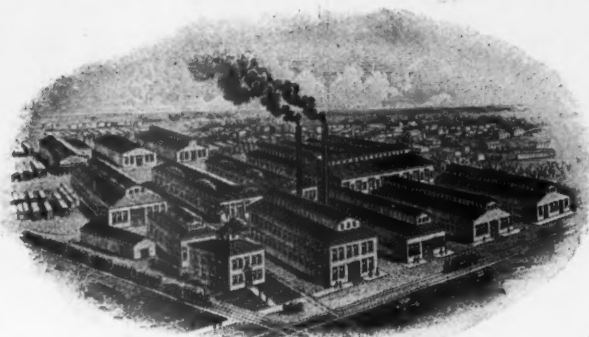
Continental Motors

STANDARD POWER FOR AUTOMOBILES AND TRUCKS

ONE-TON TRUCK ATTACHMENT FOR FORDS

NOT AN ASSEMBLED PROPOSITION

EVERYTHING
BUILT IN
OUR OWN
FACTORY

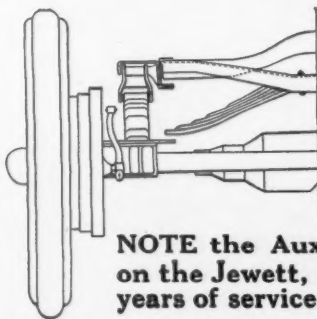
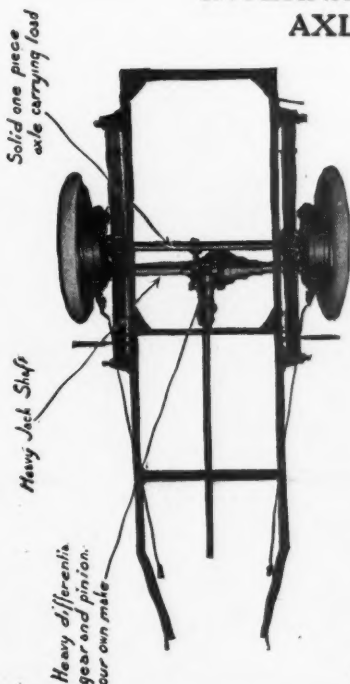


THE PLANT BEHIND THE TRUCK

THIS IS WHY
WE CAN
MAKE
DELIVERIES
AND ASSURE
YOU PROMPT
SERVICE IN
PARTS



SHAFT-DRIVEN
WITH
INTERNAL-GEAR
AXLE



NOTE the Auxiliary Spring Construction on the Jewett, which means many added years of service.

\$390

F. O. B.
NEWARK, OHIO

**IT IS FIRST—FOREMOST
STRONGEST—STURDIEST
BEST THAT MONEY CAN BUY**

WRITE OR WIRE FOR YOUR AGENCY TODAY

**DEALERS:—Here is Your Chance to
Clean Up**

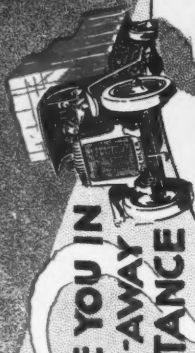
**THE JEWETT TRUCK ATTACHMENT COMPANY
NEWARK, OHIO**

1½ to 5 TON.
\$1450 UPWARD



Newark
N. J.

ARE YOU IN
DRIVE-AWAY
DISTANCE



A World

of Influence
on Transportation is en-
joyed by Koehler dealers
Everywhere

NEWARK

Why not sell this excellent line
of Trucks and Tractors in
which is used Stromberg,
Eisemann, Torbensen and
other high grade units?
Easy to sell & they stay sold.

BAY
BELL

KOEHLER
TRUCKS
AND ROAD
TRACTORS



KELLY-SPRINGFIELD
TRUCK TIRES

BABCOCK BODIES

Babcock Steel Construction (patented) is specified for everyone of the vast fleet of Motor Ambulances which Uncle Sam is providing for the transportation of wounded soldiers at home and abroad.

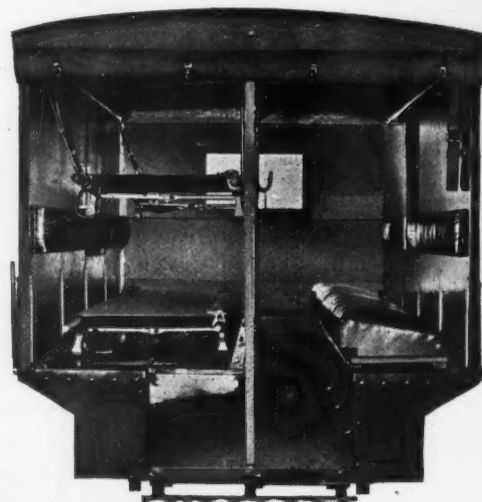
Actual tests have demonstrated to army experts that only this construction can impart the strength to withstand the grueling usage of war, without sacrificing the lightness and mobility so essential to quick and efficient service.

Manufacturers and users of trucks and commercial cars can safely rely on this cold, mechanical analysis. The demands of war and peace differ only in degree, so far as they relate to motor transportation.

Live dealers everywhere appreciate the selling power behind a Babcock Body. Prices and literature on application.

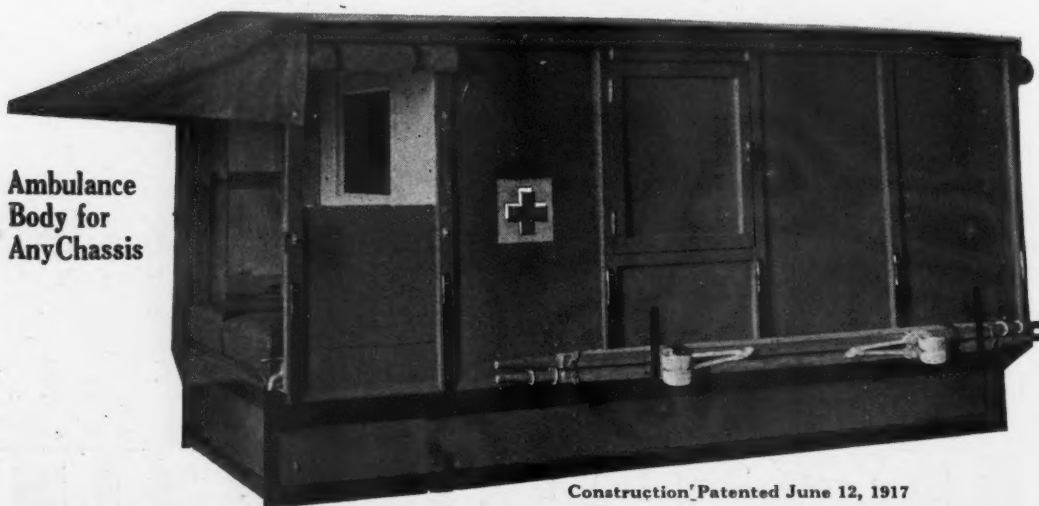
The Babcock Red Cross Ambulance Body

meets the special requirements of Women's Motor Corps, Convalescent Hospitals and various Home Relief Societies. It embodies all essential features of the Standard Army Ambulance: water tank, medicine cabinet, outside litter carriers, storm aprons, etc. Folding seats form a table for two lower litters, and two upper litters are carried on spring suspension, shoving in on trolleys for convenience of loading. Rear center post folds up out of the way when litters are removed. Weight is reduced to a minimum and the body can be mounted on any appropriate chassis. Crated K. D. under 32".



For Prone or Sitting Patients

Carriage Factories, Ltd., Toronto, Canadian Mfrs.



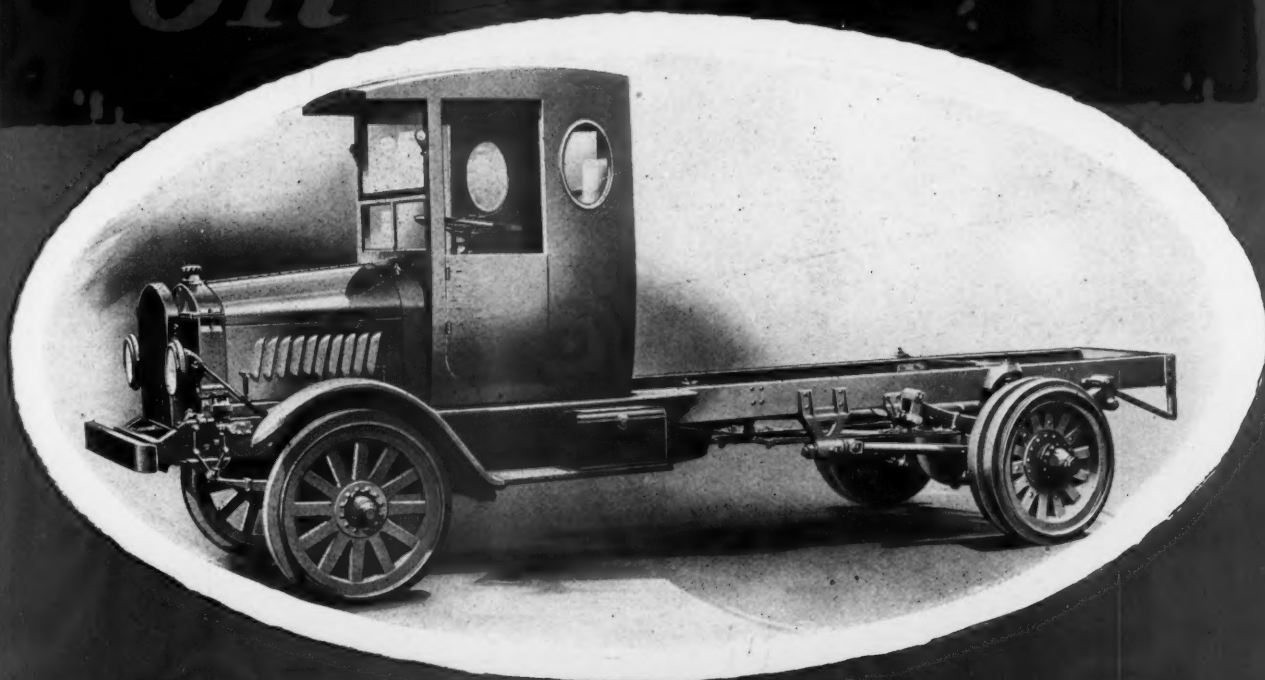
Ambulance
Body for
Any Chassis

Construction Patented June 12, 1917

H. H. BABCOCK COMPANY
WATERTOWN, FOUNDED 1845 NEW YORK.

Why You Can Get **IMMEDIATE DELIVERIES**

on



ONEIDA TRUCKS

Reason No. 1

**We
Have
The
Materials**

IT is one achievement to design and build one of America's great trucks. It is another to *insure* immediate deliveries. We have achieved both.

These are times when an adequate supply of materials is the most important necessity of industry—and we have the materials.

Foresight in buying months ago has safeguarded us against delivery delays on account of this scarcity of materials.

Right now in our stock rooms are stored material supplies sufficient to keep a steady stream of Oneida Trucks leaving the factory daily for months to come—and other big supplies are contracted for and are on their way.

We *know* that you can get deliveries on Oneida Trucks *promptly on the date ordered*. The materials are here waiting. When you place your order you know that it will be filled immediately.



ONEIDA TRUCKS

Reason No. 2

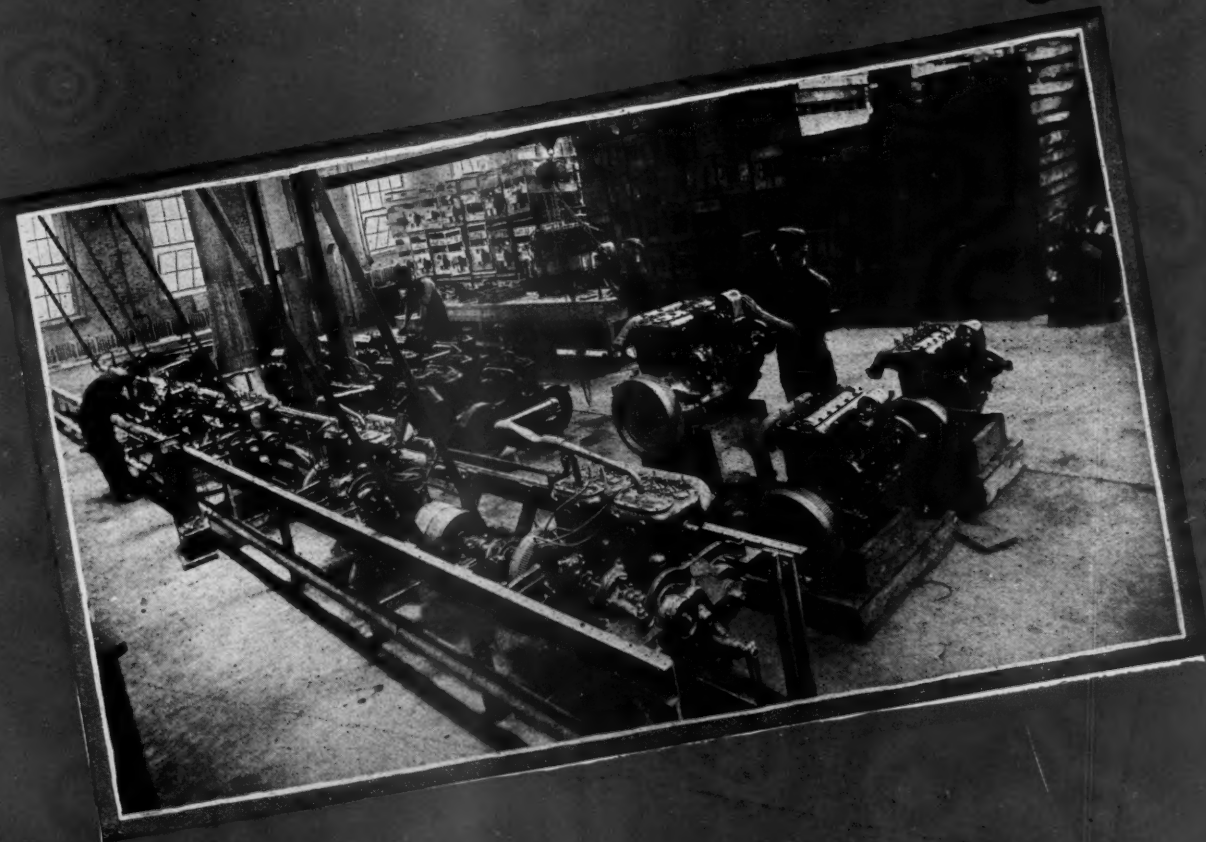
ONEIDA engineers have not only produced a master truck—a truck whose unflinching power, strength, stamina, and rugged dependability have given it the right of first consideration—but they have solved the problem of volume production.

With a high-tension factory organization that is a worthy reflection of Oneida quality, Oneida Trucks are coming through in a steady stream—not a hitch from initial assembly to final inspection.

This speedy production does not mean that the actual work is done in a hurry—each part receives the careful, thorough workmanship of Oneida experts—but there is not a lost motion or a lost minute. Every movement, every operation, every moment—whether in foundry, machine shop, testing or assembly room—counts.

This clockwork efficiency—far beyond that of the usual factory—has put Oneida deliveries on an “at once” basis.

**Jobs Coming
Through In
a Steady
Stream**



ONEIDA TRUCKS

Reason No. 3

IT is not what can or will be done that counts in delivering trucks—but rather what *is* being done. Oneida Trucks *are* being built in large numbers—and the production rate is daily increasing.

From the time that the first shop order is issued on an Oneida Truck to the time it rolls out of the factory door, a tested product there is not a delay. With clocklike regularity Oneida Trucks are being produced—maintaining a safe lead on demand.

This means that when you order an Oneida you don't have to wait till it is built in order to get delivery. It is *already built*. When your order arrives there is a truck *waiting* to fill it.

SPECIFICATIONS

Continental motor, Cotta transmission, Timken axles, Bosch magneto, Stromberg carburetor, and Hele-Shaw clutch. Lubrication: Combination of splash and force feed. Radiator fitted with special Pneumatic Vibration and Shock Absorbers. Complete electric lighting equipment. 1, 1½, 2, 3½ and 5 ton models. All worm drive.

ONEIDA MOTOR TRUCK CO.

DEPARTMENT 309

GREEN BAY, WIS.

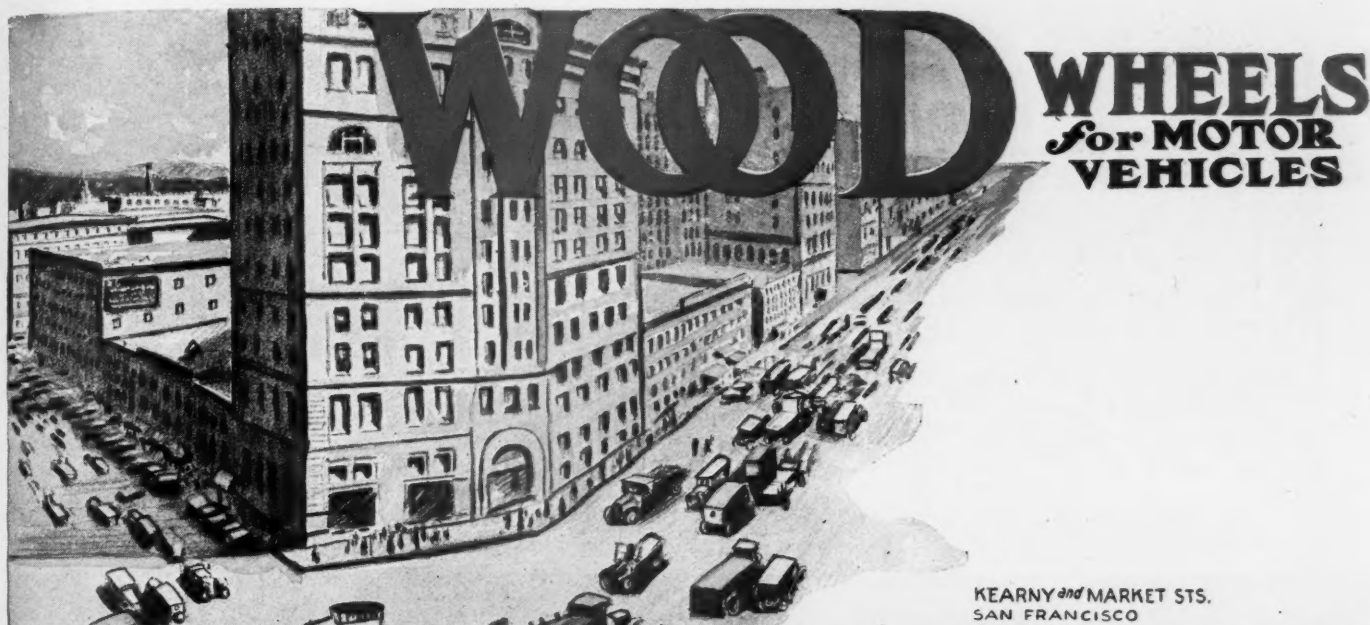
BRANCHES:

Eastern Factory Branch: 211 West 19th Street, New York, N. Y.
 Eastern Virginia Distributors: 786 Granby Street, Norfolk, Va.
 Central Western Factory Branch: 1626 Harmon Place, Minneapolis, Minn.
 United Motor Sales Co., 4th and Pearl Street, Sioux City, Iowa
 California Distributors: Rannels Motor Sales Co.,
 141 Grove St., San Francisco, Cal.

**No Delays
 from
 Construction
 Order to
 Final Tests**



ONEIDA TRUCKS



KEARNY and MARKET STS.
SAN FRANCISCO

Proof against vibration on street *and* road

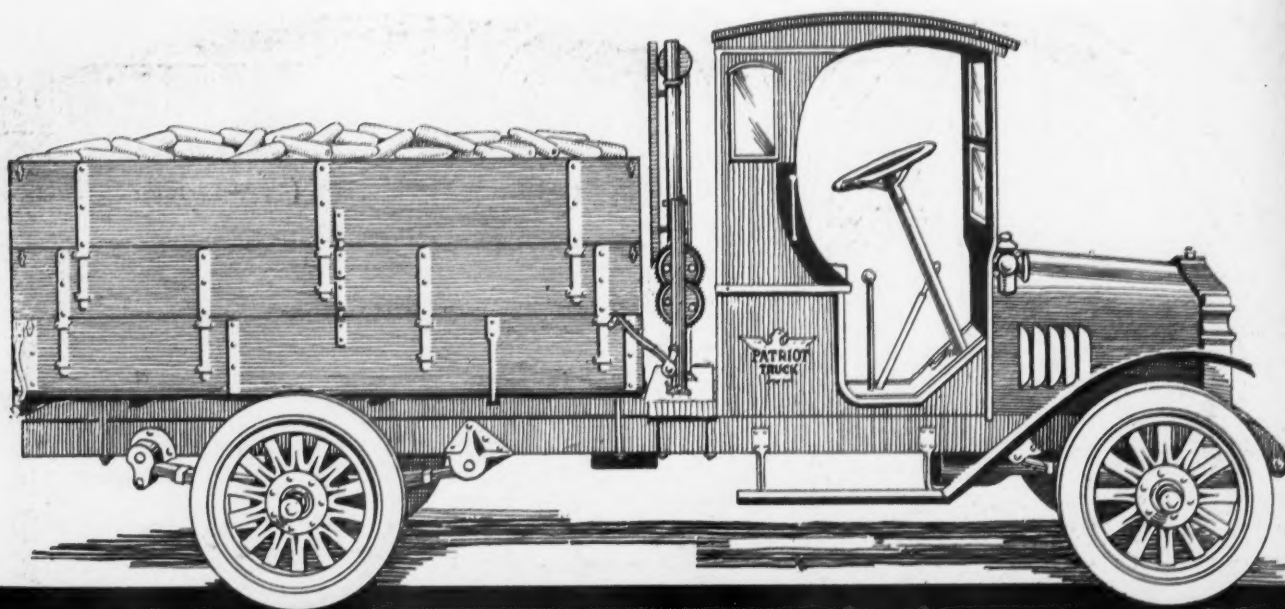
The most severe jolting and jarring over rough streets and roads does no damage to wood wheels. The tough, resilient fibre of the spokes and felloes reduces the shocks of traffic, thereby not only saving the wheels themselves from injury, but also protecting the engine, transmission and other vulnerable parts of the car from racking vibration.

This "give" and elasticity of the wood wheel means longer lasting wheels and longer life to motor vehicles.

It means that the arch-enemy of metal—vibration—has no terrors for the owner whose vehicles are equipped with wood wheels.

AUTOMOTIVE WOOD WHEEL
MANUFACTURERS ASSOCIATION
105 NORTH 13th STREET PHILADELPHIA

NOTE
THE
WOOD
WHEELS
EVERYWHERE



Patriot FARM Truck

Speeds up farm transportation. Brings better markets nearer. Masters bad roads. Saves high-priced horses. Every farmer with 160 acres or more needs one.

The Patriot Dump Body, with the powerful **Patriot Hand Hoist**, makes it possible to easily and quickly dump the load. Hoist is our own invention. Body is built like a farm wagon body, except better. Will stand long and hard wear.

"A World-Beater for a Farm Proposition"

A Colorado farmer, formerly in the automobile business in Nebraska, writes:

"Saw your ad in the 'Kansas City Star.' The Patriot Truck looks like a world-beater for a farm proposition. 'The people out here have to draw their grain and live stock 16 to 20 miles, and I know from actual experience that the gasoline-propelled vehicle has taken the place of horses and mules.'"

HEBB MOTORS COMPANY

Manufacturers of Patriot Farm Trucks

1331 P Street

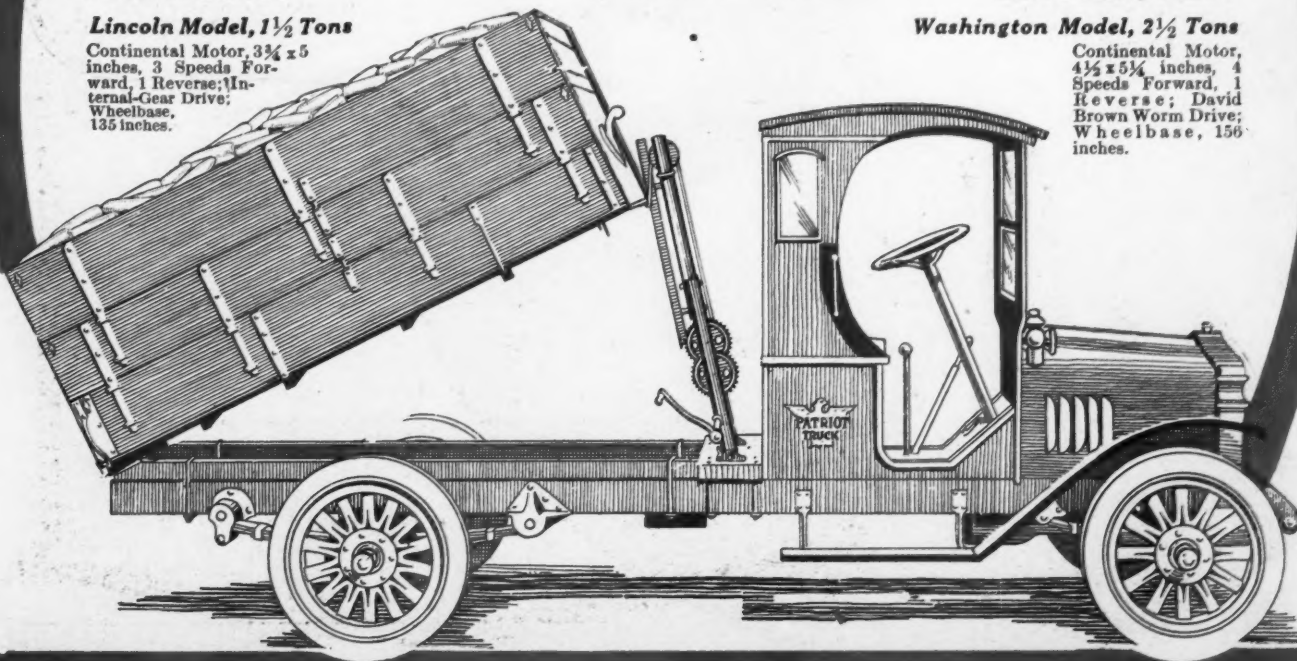
LINCOLN, NEB.

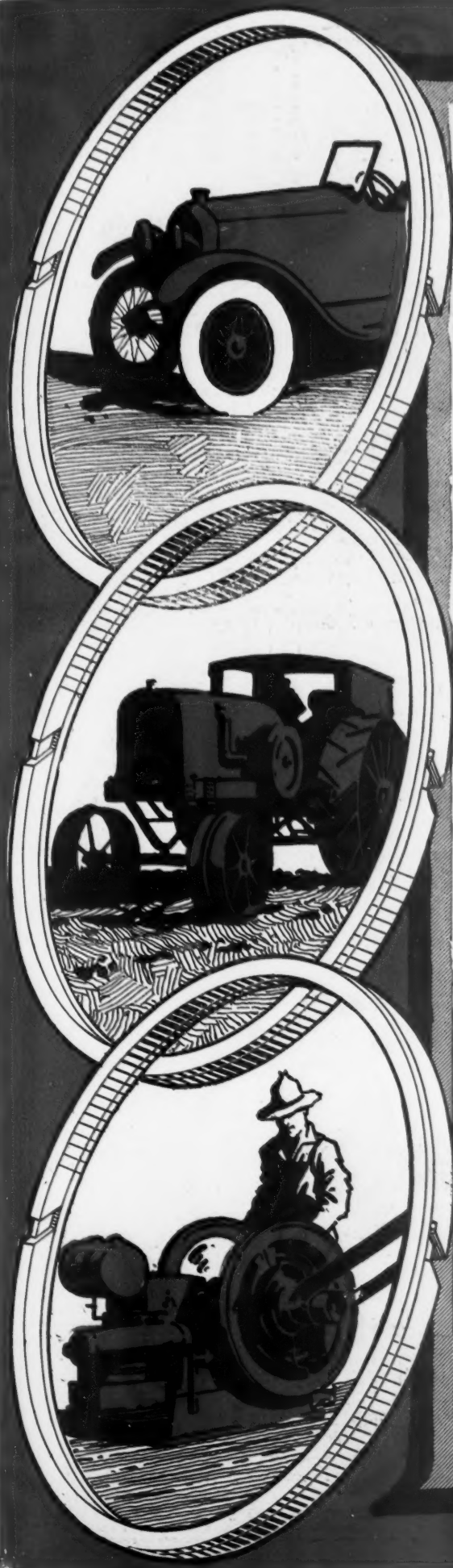
Lincoln Model, 1½ Tons

Continental Motor, 3½ x 5 inches, 3 Speeds Forward, 1 Reverse; Internal-Gear Drive; Wheelbase, 135 inches.

Washington Model, 2½ Tons

Continental Motor, 4½ x 5½ inches, 4 Speeds Forward, 1 Reverse; David Brown Worm Drive; Wheelbase, 156 inches.





Immediate Service on Piston Rings

When your motor needs new piston rings you want to get them at once. You can't afford to let your trucks stand idle and delay deliveries, waiting for a set of rings to be made. That's when you need the prompt service given everywhere on

McQUAY-NORRIS **LEAK-PROOF** PISTON RINGS

All over the country we've placed complete assortments of all standard sizes. Your nearest dealer can get them for you quickly through his jobber or supply house. If the condition of the grooves of the cylinders require over-size rings, we have over 2000 unusual sizes and over-sizes—all widths and diameters—on hand at the factory ready for immediate shipment anywhere.

McQuay-Norris **LEAK-PROOF** Piston Rings are the best and promptest answer when any power or carbon trouble develops due to faulty or worn piston rings. They save fuel and oil—reduce motor wear. Give better service and will outlast any other make of piston ring.

If You Have Oil Trouble

—an oil-pumping motor that's wasteful and fouls spark plugs—use one

McQUAY-NORRIS **Superoyl** RING

in the top groove of each piston. Made with a scientifically designed oil reservoir—allows perfect lubrication, without excess oil. Should always be used with McQuay-Norris **LEAK-PROOF** Piston Ring equipment in lower grooves to get the best compression, most power and greatest operating economy.

Why Better Piston Rings Mean More Power and Economy.

Send for our booklet—"To Have and To Hold Power."

Clearly written—with diagrams—fully explaining the piston ring and power question. Every owner who desires greater efficiency and lower operating cost should read it. Judge for yourself which piston rings can be trusted out of sight in the vitals of your motor. Write Dept. C.

Manufactured by

McQuay-Norris Mfg. Co., St. Louis, U. S. A.

BRANCH OFFICES:

New York	Chicago	Pittsburgh	San Francisco	Los Angeles
Seattle	Kansas City	St. Paul	Atlanta	Dallas

Canadian Factory: W. H. Banfield & Sons, Ltd., 372 Pape Ave., Toronto



Over Strength



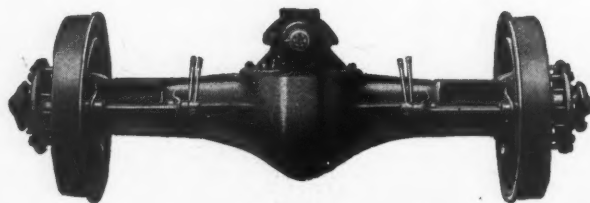
WORM-DRIVE

GREAT over-strength makes Wisconsin Axles give maximum, dependable service. No truck is ever burdened with a 25 ton load, yet Wisconsin Axles must pass such a test before being shipped, pressure equal to a 25 ton load being applied to center of housing. Strom bearings are used for mounting.

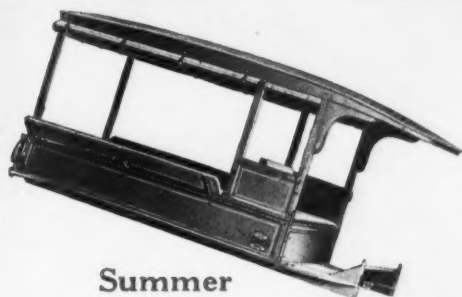
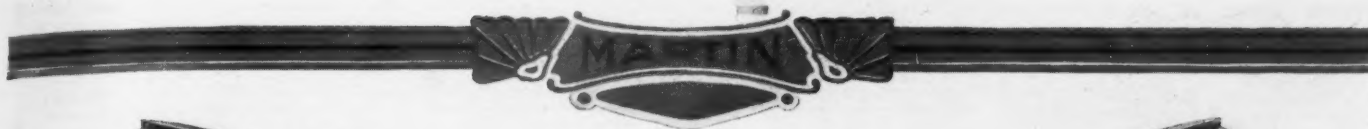
This over-strength plus simplicity, efficiency and correctness of type assures complete satisfaction. The wide popularity of Wisconsin Axles with manufacturers substantiates their dependability.

Place your order for future needs now and guard against possible shortage in the market later. Our increased facilities make prompt deliveries possible. Let us tell you more about Wisconsin Axles and *why* so many trucks are equipped with them.

5 Models: 3½, 2½, 2, 1½, and 1 Ton Capacity



E. B. Hayes Machinery Corporation
Oshkosh, Wisconsin

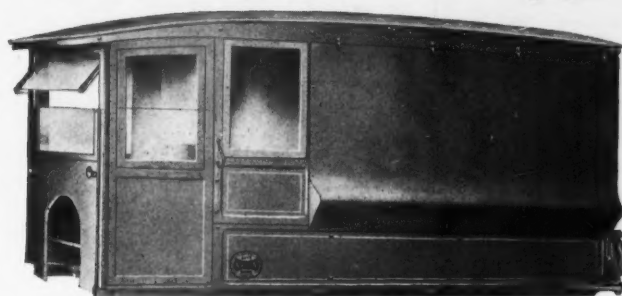


Summer

Six-Post
Express
Body



Fall



Winter

A Masterpiece of Commercial-Body Craftsmanship —Attachable Enclosures—All Parts Interchangeable

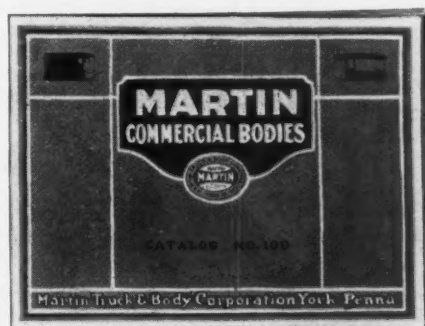
Send for your copy of the new Martin catalog. Every dealer, jobber and garage owner who sells trucks, truck units or accessories should not fail to have this Martin catalog on his counter. It solves every phase of the body problem, and speeds up sales by making "immediate deliveries" an actuality. It is the most comprehensive book ever issued on commercial bodies. Handsomely illustrated in colors and practically arranged for quick reference. Mailed postpaid for the asking.

THE MARTIN ALL-SEASON BODY

The supreme advantage of the Martin All-Season Body is in the fact that all parts are interchangeable. It can be enclosed in an hour, to suit each change of season, with stock parts obtainable from any Martin dealer.

A third of a century's organizing of men, equipment and materials has kept the Martin products always a length or two ahead of possible competition. Martin bodies are finer in quality, stancher in construction and peerless in style and finish.

The greatest achievement of the commercial body industry is presented in this book.

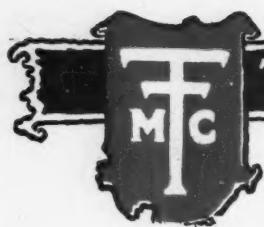


This new Martin catalog is now ready for mailing. Send for it—today.

New dealers are wanted in almost every locality. This new line offers a wonderful opportunity for car dealers to keep their sales organizations intact and profitably employed during this period of car and truck shortage—write for our proposition.



Martin Truck and Body Corporation, York, Pa.



THE LOWEST PRICED 4000 LB. CAPACITY TRUCK IN THE WORLD.

—and again we say!

Traffic Truck

4,000 LBS. CAPACITY

\$1195

\$1195

The "Traffic" has bounded past all competition—its dominant position has been nailed fast in the industrial world and is firmly established by presenting the greatest truck value in existence today.

The Lowest Priced 4,000-lb. Capacity Truck in the World.

Dealers everywhere are enthusiastic—users are more so—sales territory open to dealers is dwindling at an amazing rate—day by day contracts are closed with representative dealers who have the ability to measure opportunity.

We aimed for the best national selling organization in the country and are getting it.

We are choosing our dealers carefully, consequently there is still territory open for those who will come to St. Louis, see the Traffic produced and perform and get the facts direct.

Wire and learn whether or not the territory you want is open—then get on a train and come to St. Louis.

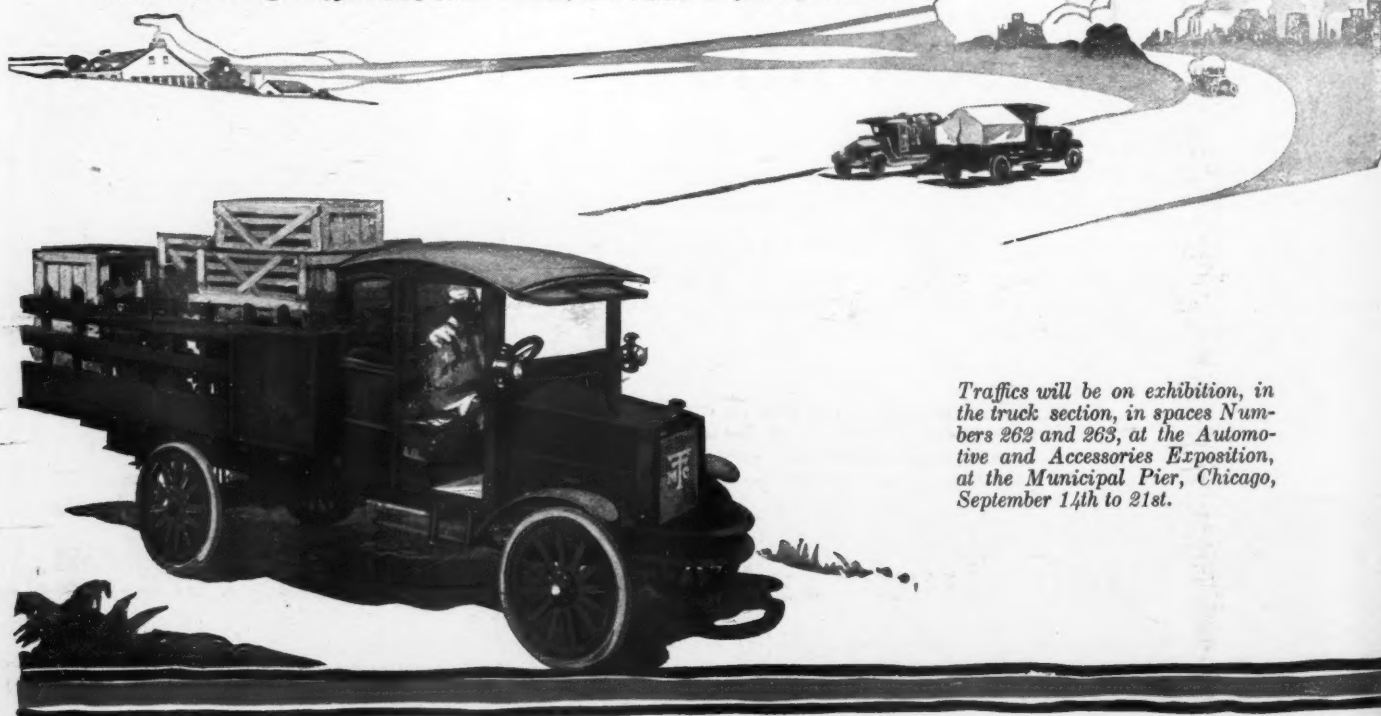
TRAFFIC MOTOR TRUCK CORPORATION

3807-19 Laclede Avenue

St. Louis, Mo.

A few Traffic Features:

Prompt deliveries: Weight, 3,000 lbs.; Gray Motor, 4-cylinder valve-in-head, 35 h.p. Covert Transmission; Multiple-disc clutch; Kingston Magneto; Cellular type radiator; Drop-forged front axle with Timken roller bearings; Russel Rear Axle; internal gear, roller bearings; Semi-elliptic front and rear springs; 6-inch U-Channel frame; Standard Fisk tires; 133-inch wheelbase; 122-inch length of frame behind driver's seat; Oil cup lubricating system—and many other features for perfect performance.



Traffics will be on exhibition, in the truck section, in spaces Numbers 262 and 263, at the Automotive and Accessories Exposition, at the Municipal Pier, Chicago, September 14th to 21st.



The worst month in the year for automobile accidents

Brakes are worn down after a summer's use and need inspection

SEPTEMBER is the worst month in the year for automobile accidents, according to records kept by police departments and safety societies. Here is the reason:

The cars have been used all summer—the brakes are worn down. Then, when the emergency comes, the brakes fail.

Your customers cannot afford to tolerate poor brakes. The protection of their cars and their own safety depend on the brakes being efficient. Their cars will be in service at least two or three months longer. In some cases they will be used right through the winter.

Your customers should have their brakes inspected regularly

Point out to your customers why there are so many accidents in September. Urge them to have their brakes inspected at regular intervals.

When their brakes need relining, put on Thermoid, the brake lining that is made for long, certain service.

Three reasons why Thermoid satisfies your customers

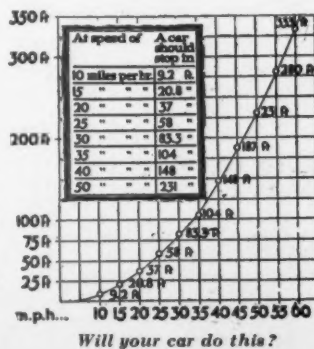
1st—Over 40% more material and 60% more labor is used in the manufacture of Thermoid than in any woven brake lining. This gives longest service.

2nd—Thermoid is the one brake lining that is Grapnalized. This exclusive process resists moisture, oil and gasoline.

3rd—Thermoid is hydraulic compressed. It wears down slowly and can be used until cardboard thin.

Thermoid dealers are given the heartiest co-operation in building up a profitable volume of relining business. If you are not handling Thermoid, write today for information about the assistance which we give our dealers.

Every foot of Thermoid Hydraulic Compressed Brake Lining is backed by **Our Guarantee: Thermoid will make good—or WE WILL.**



Thermoid Rubber Company

Factory and Main Offices: Trenton, N. J.

Factory Branches:

New York Chicago San Francisco
Detroit Los Angeles Philadelphia
Pittsburgh Boston London Paris Turin

Canadian Distributors:

Canadian Fairbanks-Morse Co., Limited
Montreal

Branches in all principal Canadian cities

20,000 dealers throughout the United States and Canada



Makers of "Thermoid Crolide Compound Casings" and "Thermoid Hardy Universal Joints"



THE LOWEST PRICED 4000 LB. CAPACITY TRUCK IN THE WORLD.

—and again we say!

Traffic Truck

4,000 LBS. CAPACITY

\$1195

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The "Traffic" has bounded past all competition—its dominant position has been nailed fast in the industrial world and is firmly established by presenting the greatest truck value in existence today.

The Lowest Priced 4,000-lb. Capacity Truck in the World.

Dealers everywhere are enthusiastic—users are more so—sales territory open to dealers is dwindling at an amazing rate—day by day contracts are closed with representative dealers who have the ability to measure opportunity.

We aimed for the best national selling organization in the country and are getting it.

We are choosing our dealers carefully, consequently there is still territory open for those who will come to St. Louis, see the Traffic produced and perform and get the facts direct.

Wire and learn whether or not the territory you want is open—then get on a train and come to St. Louis.

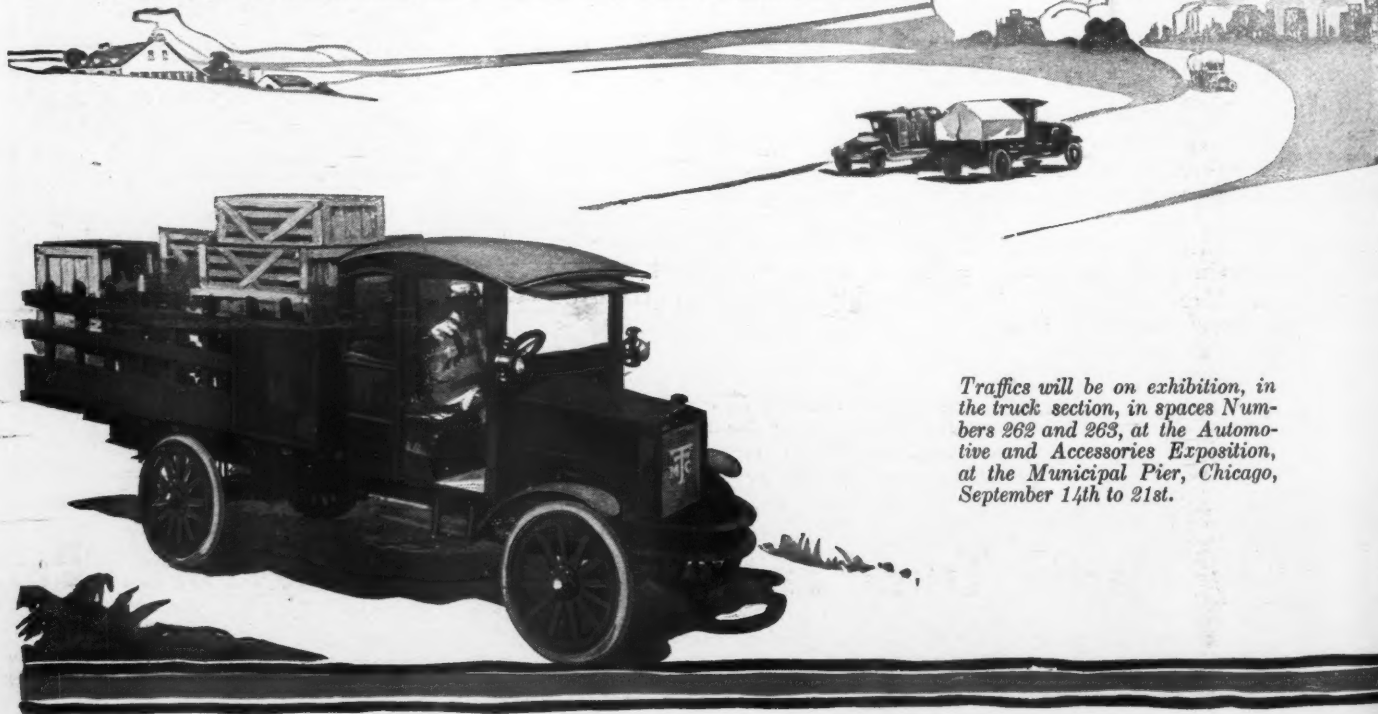
TRAFFIC MOTOR TRUCK CORPORATION

3807-19 Laclede Avenue

St. Louis, Mo.

A few Traffic Features:

Prompt deliveries; Weight, 3,000 lbs.; Gray Motor, 4-cylinder valve-in-head, 35 h.p. Covert Transmission; Multiple-disc clutch; Kingston Magneto; Cellular type radiator; Drop-forged front axle with Timken roller bearings; Russel Rear Axle; Internal gear, roller bearings; Semi-elliptic front and rear springs; 6-inch U-Channel frame; Standard Fisk tires; 133-inch wheelbase; 122-inch length of frame behind driver's seat; Oil cup lubricating system—and many other features for perfect performance.



Traffics will be on exhibition, in the truck section, in spaces Numbers 262 and 263, at the Automotive and Accessories Exposition, at the Municipal Pier, Chicago, September 14th to 21st.



The worst month in the year for automobile accidents

Brakes are worn down after a summer's use and need inspection

SEPTEMBER is the worst month in the year for automobile accidents, according to records kept by police departments and safety societies. Here is the reason:

The cars have been used all summer—the brakes are worn down. Then, when the emergency comes, the brakes fail.

Your customers cannot afford to tolerate poor brakes. The protection of their cars and their own safety depend on the brakes being efficient. Their cars will be in service at least two or three months longer. In some cases they will be used right through the winter.

Your customers should have their brakes inspected regularly

Point out to your customers why there are so many accidents in September. Urge them to have their brakes inspected at regular intervals.

When their brakes need relining, put on Thermoid, the brake lining that is made for long, certain service.

Three reasons why Thermoid satisfies your customers

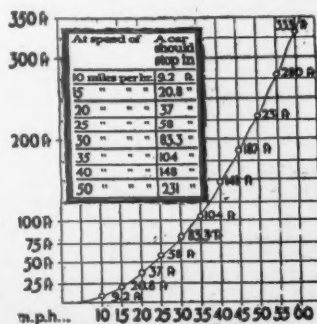
1st—Over 40% more material and 60% more labor is used in the manufacture of Thermoid than in any woven brake lining. This gives longest service.

2nd—Thermoid is the one brake lining that is Grapnalized. This exclusive process resists moisture, oil and gasoline.

3rd—Thermoid is hydraulic compressed. It wears down slowly and can be used until cardboard thin.

Thermoid dealers are given the heartiest co-operation in building up a profitable volume of relining business. If you are not handling Thermoid, write today for information about the assistance which we give our dealers.

Every foot of Thermoid Hydraulic Compressed Brake Lining is backed by **Our Guarantee: Thermoid will make good—or WE WILL.**



Will your car do this?

Thermoid Rubber Company

Factory and Main Offices: Trenton, N. J.

Factory Branches:
 New York Chicago San Francisco
 Detroit Los Angeles Philadelphia
 Pittsburgh Boston London Paris Turin

Canadian Distributors:
 Canadian Fairbanks-Morse Co., Limited
 Montreal

Branches in all principal Canadian cities
 20,000 dealers throughout the United States and Canada



Makers of "Thermoid Crolide Compound Casings" and "Thermoid Hardy Universal Joints"



Magneto Ignition Superiority Proved by World War

In dangerous airplane operation, in severe motor transport work, in the rigorous service of the big, lumbering tanks, magneto ignition is thoroughly establishing its superiority as the supreme ignition system.

No engine which must measure up to the standards of efficiency, service and effort so needful today, should employ other than Bosch Magneto Ignition.

It is a system which ranks ignition as it should be—supreme in importance, free from all other units, independent of batteries, coils and other contraptions—with consequent dependable service.

Operating under any emergency, any condition, the Bosch Magneto first supplies reliable ignition, then superior ignition. Its "rip-roaring sparks" get every ounce of power out of every atom of gas, and keep the engine running in the absolute rhythm necessary to its long life.

Ask any user of Bosch Ignition, any air pilot, racing driver, motorist, truck or tractor operator: they will tell you of their freedom from ignition difficulty.

No engine is too low-priced to have an ignition system backed up by the sound engineering principles and painstaking manufacture found only in Bosch.

Bosch Magneto Company

BRANCHES: Detroit, Chicago, San Francisco

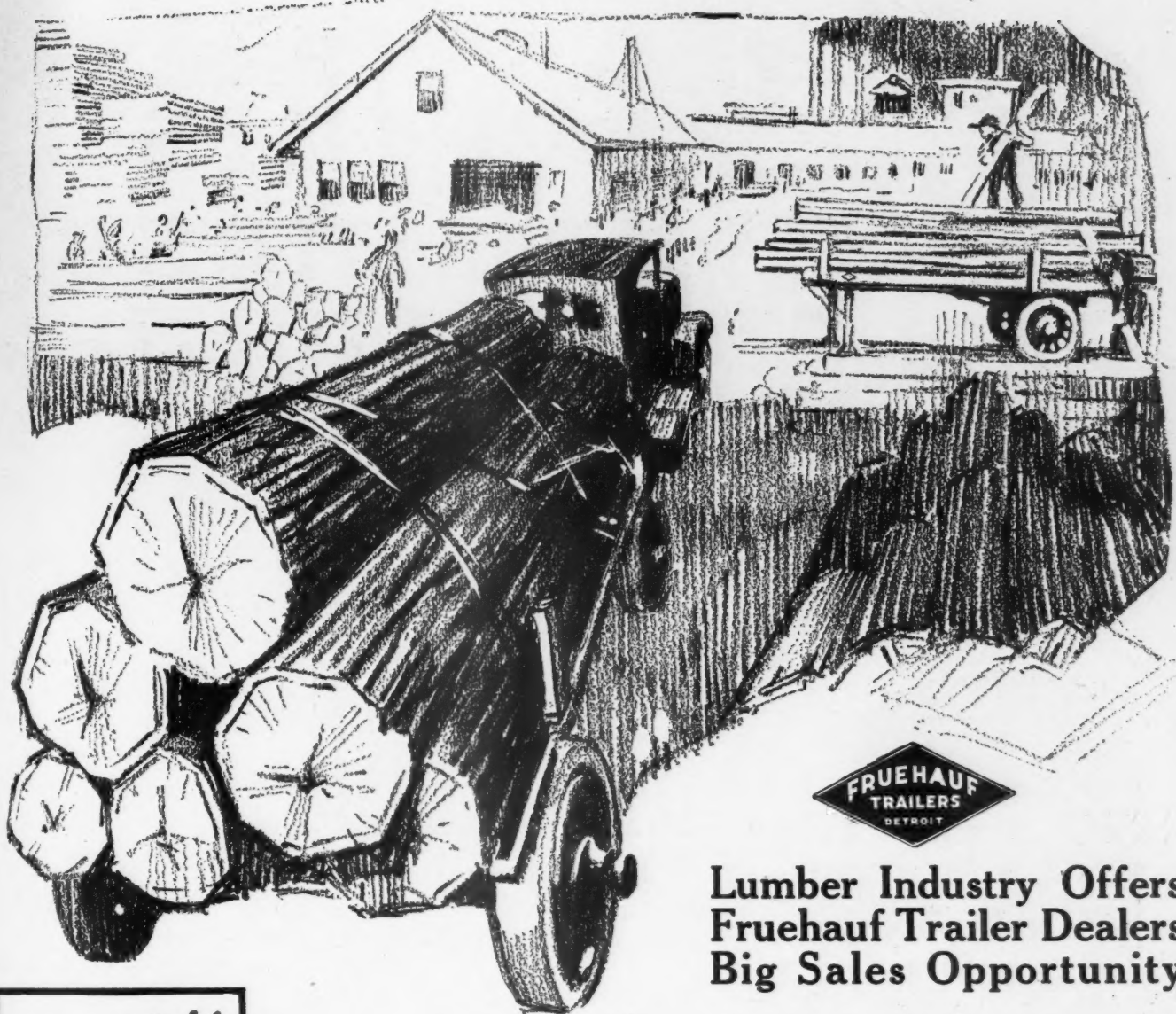
222 West 46th Street, New York City

WORKS AND FOUNDRIES: Springfield, Mass.

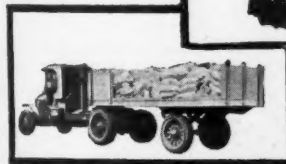
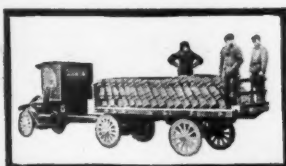
BOSCH

AMERICA'S SUPREME IGNITION SYSTEM

MOTOR TRUCKS - TRACTORS - AIRPLANES - MOTOR CARS - MOTOR BOATS - MOTORCYCLES - GAS ENGINES - ETC.



Lumber Industry Offers Fruehauf Trailer Dealers Big Sales Opportunity



The Fruehauf line is particularly adaptable to the lumber industry.

There are adjustable reach trailers for hauling poles or logs; Fruehauf Trailers, equipped with loading and unloading devices and patented jacks, which make it possible to instantly disconnect the trailer from the truck and allow the trailer to stand alone in its strong support.

Then, too, there is a Fruehauf Trailer for every other business. Fruehauf dealers can satisfy every requirement of prospective trailer users.

Let us send you complete information about the Fruehauf line, as well as details regarding discounts and territory.

FRUEHAUF TRAILER COMPANY

1302 Gratiot Avenue

Detroit, Michigan

FRUEHAUF TRAILERS



Garford
MOTOR
TRUCKS

Get this Business -Be a Garford Dealer

THOUSANDS can see this opportunity.

Many will *profit* by it. Will you?

—Then build for more permanent and profitable business.

—Be a Garford Dealer.

There is a Garford for every business need today!

The Garford Dealer is backed by a sound sales policy.

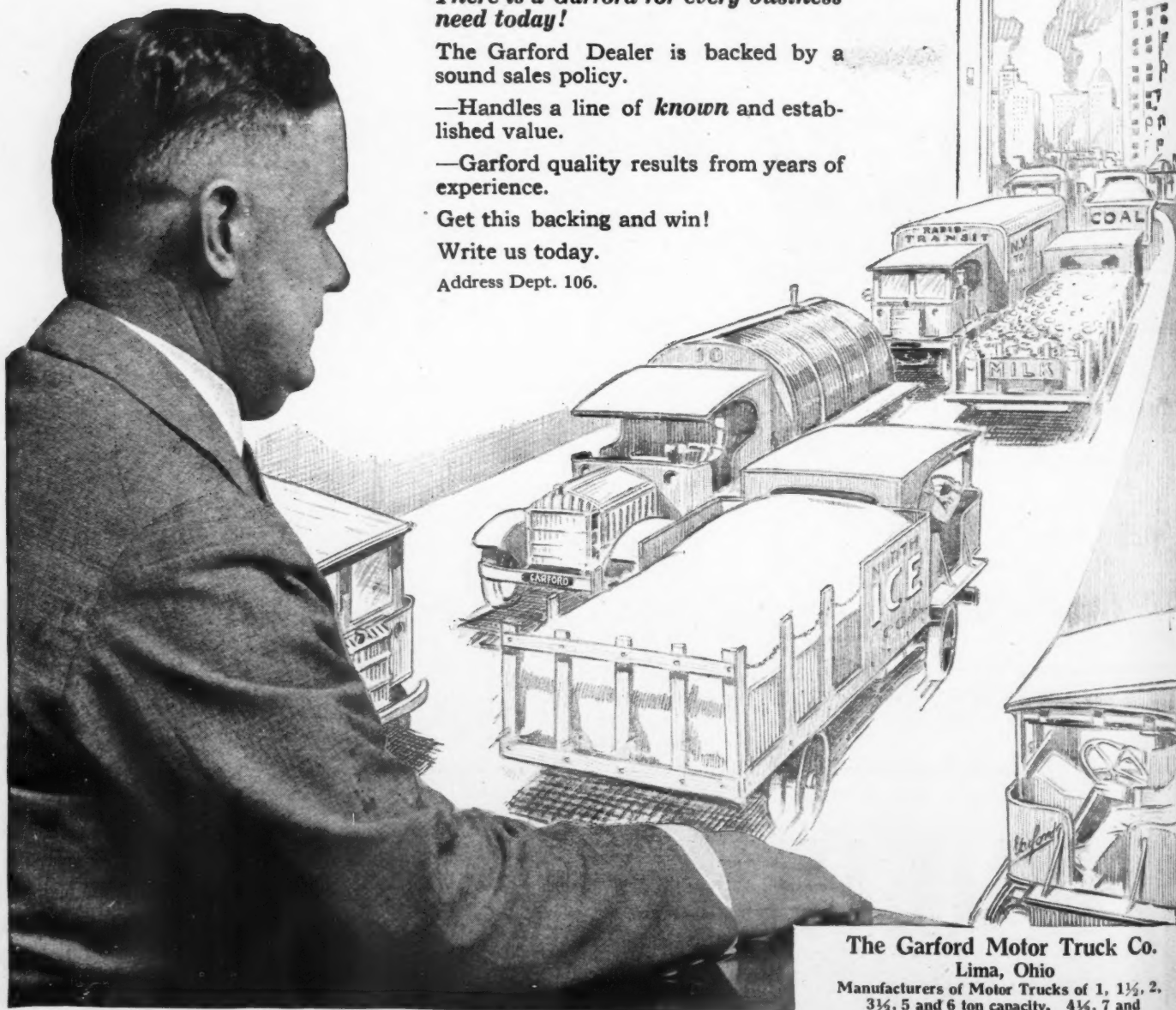
—Handles a line of *known* and established value.

—Garford quality results from years of experience.

Get this backing and win!

Write us today.

Address Dept. 106.



The Garford Motor Truck Co.

Lima, Ohio

Manufacturers of Motor Trucks of 1, 1½, 2, 3½, 5 and 6 ton capacity. 4½, 7 and 10 ton Tractors

“We have been using Non-Gran in a heavy-duty bearing on our machine, adopting it after we had tried out several other bronzes as well as white metal bearings and have found Non-Gran to give better wearing quality than any other bearing material.”

SO wrote one of America's most prominent manufacturers of printing machinery.



American Bronze Corporation
Berwyn Pennsylvania

QUALITY



THE essential qualities of New Departure Ball Bearings that make for satisfactory performance are determined at the very beginning of things.

The resources of the New Departure organization combine to give these bearings a metallurgical structure which is of exceptional strength and durability.

The special chrome alloy steels are made to our own specifications, and under the personal supervision of New Departure experts. Thus it is that New Departure steels are unexcelled in this country or in any other, for the purpose to which they are put.

Bristol, Conn.

THE NEW DEPARTURE MANUFACTURING CO.

Detroit, Mich.

Conrad Patent Licensee.

**New Departure
Ball Bearings**



The RUSSEL Motor Axle Co. is proud of the fact that its famous Internal-Gear Drive Axles are safeguarded against neglect from the user. And so it should be. For lack of lubrication in an axle means short life and quick depreciation.

BOUND BROOK & NIGRUM

TRADE-MARK REGISTERED U. S. PATENT OFFICE

OIL-LESS BUSHINGS

Here and there throughout the RUSSEL Axle, in out-of-the-way, liable-to-be-neglected places, the far-sighted RUSSEL Engineers have specified genuine graphited Oil-less Bushings.

These bushings need no oiling. They can be neglected without causing quick wear. They contain within themselves sufficient lubrication to last their lifetime. Oiling can-

not harm them, but with or without oil, attended to or neglected, they run smoothly, efficiently, and for a length of time impossible to ordinary bushings under similar conditions.

They are known as "neglect-proof bushings."

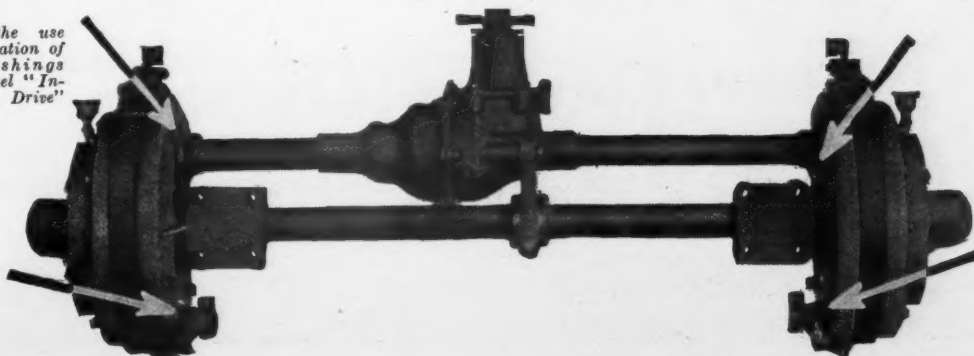
Far-sighted manufacturers, users and builders of machinery, both in this country and abroad, are using these

genuine graphited oil-less bushings to insure their machines against breakdowns or inefficient operation due to lack of lubrication of important but inaccessible parts.

All genuine graphited oil-less bushings have always been made at Bound Brook, U. S. A.

Bound Brook Oil-less Bearing Co.
Specialists in the manufacture of Oil-less Bushings for more than a third of a century
Bound Brook New Jersey

Showing the use and application of Oil-less bushings on the Russel "Internal-Gear Drive" Axle.





FULLER CONTROL SETS

FULLER control sets are adapted for right or left-hand steer.

These control sets, in conjunction with the Fuller transmissions and clutches, make up a well-known, heavily specified group, now standard on scores of truck and tractor outputs. The high standard maintained from purchasing to shipping departments (including three tests of every bar and gear), has made these products of extraordinary value to the makers of quality trucks and tractors.

We have facilities for more "on time" work. May we help you with your clutch and transmission problems?

FULLER & SONS MFG CO
Kalamazoo Michigan

Detroit Office:
Kresge Bldg.

"He Profits Most Who Serves Best"



MATHER SPRINGS

Scientifically Heat-Treated

Unequalled for
Lightness, Flexibility
and Endurance

Genuine made only by

THE MATHER SPRING COMPANY

Toledo, Ohio



Giant TRUCKS

First to burn low-grade fuels—that is the stupendous achievement of Giant Trucks.

Here is the timely truck, attaining full power on low-gravity gasoline or mixtures of kerosene or distillate with gasoline.

Giant Trucks give maximum efficiency and reduce fuel costs as much as 50 per cent. The best engineering skill in America developed this exclusive feature, making Giant Trucks FIRST TO BURN LOW-GRADE FUELS.

Giant Trucks are the season's biggest opportunity. Our dealer proposition is liberal, protective and money-making. Every dealer wants to increase his sales volume. Conditions have made trucks THE dealer road to success.

Territory is being closed rapidly. Write TODAY for complete information.

Giant Trucks are Timken worm-drive, Continental motor, and highest standardization throughout. Adaptable to every hauling need. Giant Trucks have the power that hauls. Built in 1, 2 and 3½ ton models.

CHICAGO PNEUMATIC TOOL COMPANY

1031 Fisher Bldg., Chicago, Ill.

Giant
FIRST TO BURN LOW GRADE FUELS

EISEMANN

What Do You Know About Magnetos?

You have a preference, no doubt. On what is it based? The advertising? A comparison of structural excellence? Knowledge of actual performance?

The maker's statements may be a valuable guide if they present concrete, definite facts rather than impressive generalities.

The few individuals whose technical knowledge permits them to make comparisons of materials, design and workmanship, may draw interesting conclusions.

But for the majority, the service comparison is final and conclusive.

If you will investigate the merits of Magnetos on the basis of relative efficiency, durability and dependability, it is safe to believe that you will reach the conclusion which has led 126 manufacturers of trucks, tractors and cars—including most of the recognized leaders—to adopt Eisemann Magnetos as standard equipment.

THE
EISEMANN
MAGNETO-COMPANY

Sales and General Offices:

32—33d St., Brooklyn, N. Y.

Chicago:

910 So. Michigan Ave.

Detroit:

85 Willis Ave., W.

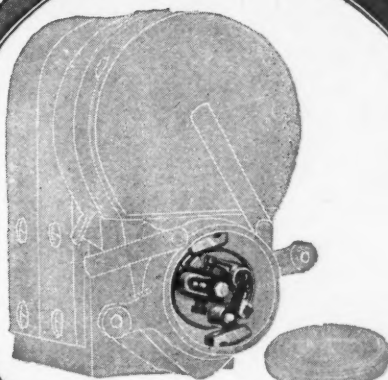
EISEMANN SUPER-CONSTRUCTION

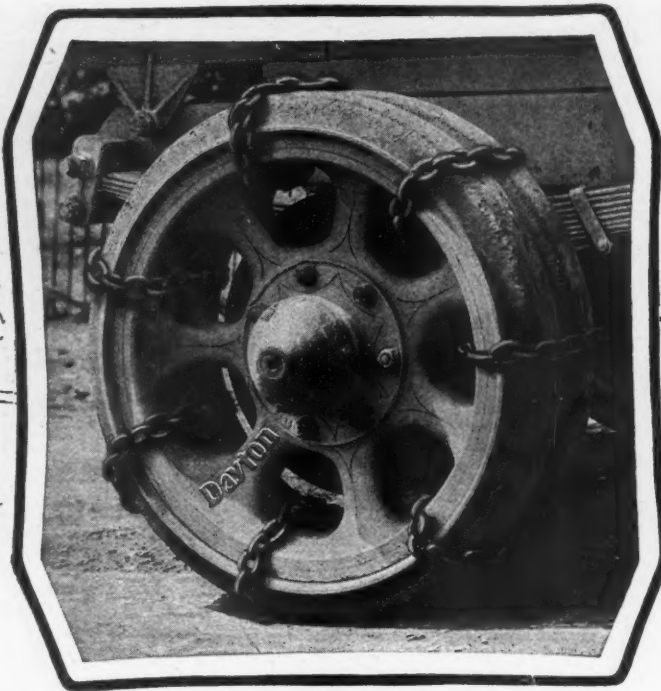
4.—The Contact Breaker and the Condenser

At the moment the current in the primary winding of the Armature attains its greatest intensity, the Contact Breaker breaks the primary circuit and so develops in the secondary winding a high-tension spark of great heat. The Eisemann Breaker is simple, sturdy and compact, consisting essentially of a small disc fastened in a cone in the end of the Armature, and revolving with it. This disc carries the mechanical and electrical elements on its outer face. The two platinum contact points—one carried by an insulated block fixed to the disc, the other by a rocker arm swinging on a self-lubricated bearing of exclusive design—are normally kept closed, but are separated at the proper instant, twice in each revolution by the sliding of the rocker-arm over flat steel cams in the timing lever body.

The Eisemann Condenser is the acme of efficiency, because of extreme care in construction and of the high quality of the mica and other materials used. It may be depended upon to function perfectly in preventing the occurrence of a spark at the opening of the Breaker contacts, and in increasing the intensity of the spark at the Plugs.

Note, in the shadowgraph above, the relation of the Breaker to the Magneto as a whole.





On Europe's World-Famous Roads Steel Motor Truck Wheels Are Necessary

TWO centuries of constant care have made the roads of Europe the finest in the world. Wear and tear on truck wheels there is less than any other place in the world.

In the face of these unsurpassed road conditions, Europe has adopted steel truck wheels in preference to wheels of any other material.

In America, where *only one per cent* of the roads are really improved, truck wheel troubles are most common and greatly lessen motor truck efficiency.

Is it not logical to believe that when steel wheels are found best for the finest roads in the world

that they would give better service on our unimproved highways?

Dayton Steel Wheels, with their patented arch construction, hollow spokes and rims, and broad sweeping curves, scientifically distribute road shocks thruout the wheel and prevent them from reaching the vitals of the truck.

They are complete in one casting of electric furnace steel. There are no built-up parts to loosen and pound hubs and bearings to pieces.

Investigate Dayton Steel Wheels yourself. We will gladly send the facts.

THE DAYTON STEEL FOUNDRY COMPANY

MAIN OFFICE AND WORKS DAYTON, OHIO

CINCINNATI NEW YORK CITY DETROIT
422 First Nat'l Bank Bldg. 416 World Bldg. 1008 Chamber of Commerce

Dayton

Steel Truck Wheels

Covert

The final product of the best engineering skill devoted to transmissions.

From the first operation to the completion, Covert Transmissions are examined, re-examined and tested; they are built proportionately step by step so as to give 100% performance.

Only best quality obtainable steels are used in Covert manufacturing—only the most skilled workmanship—all for one object, i. e. a transmission that will endure the hardest wear and tear—a transmission that will be efficient under all road conditions.

Covert Gear Company, Inc.

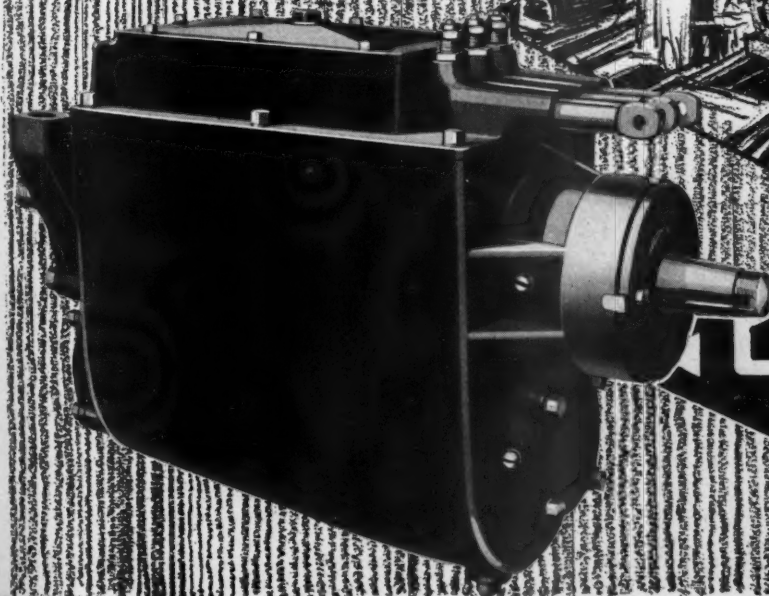
Sales, Engineering and Service

967 Woodward Ave.

Factories: Lockport, N. Y.

Detroit, Mich.

Detroit, Mich.



COVERT

TRANSMISSIONS



WATSON

UNIVERSAL SERVICE TRAILERS

Short Turns Watson Trailers are built to handle heavy loads in tight places—and to do it easily.

They turn in their own length.

It is not uncommon to see three Watson Units turning in a 20-foot street—without backing.

The fifth wheel on the front end of every Watson Trailer is, we believe, superior to the double hitch principle which sacrifices turning radius and causes time loss and bother—for backing, unhitching and hitching.

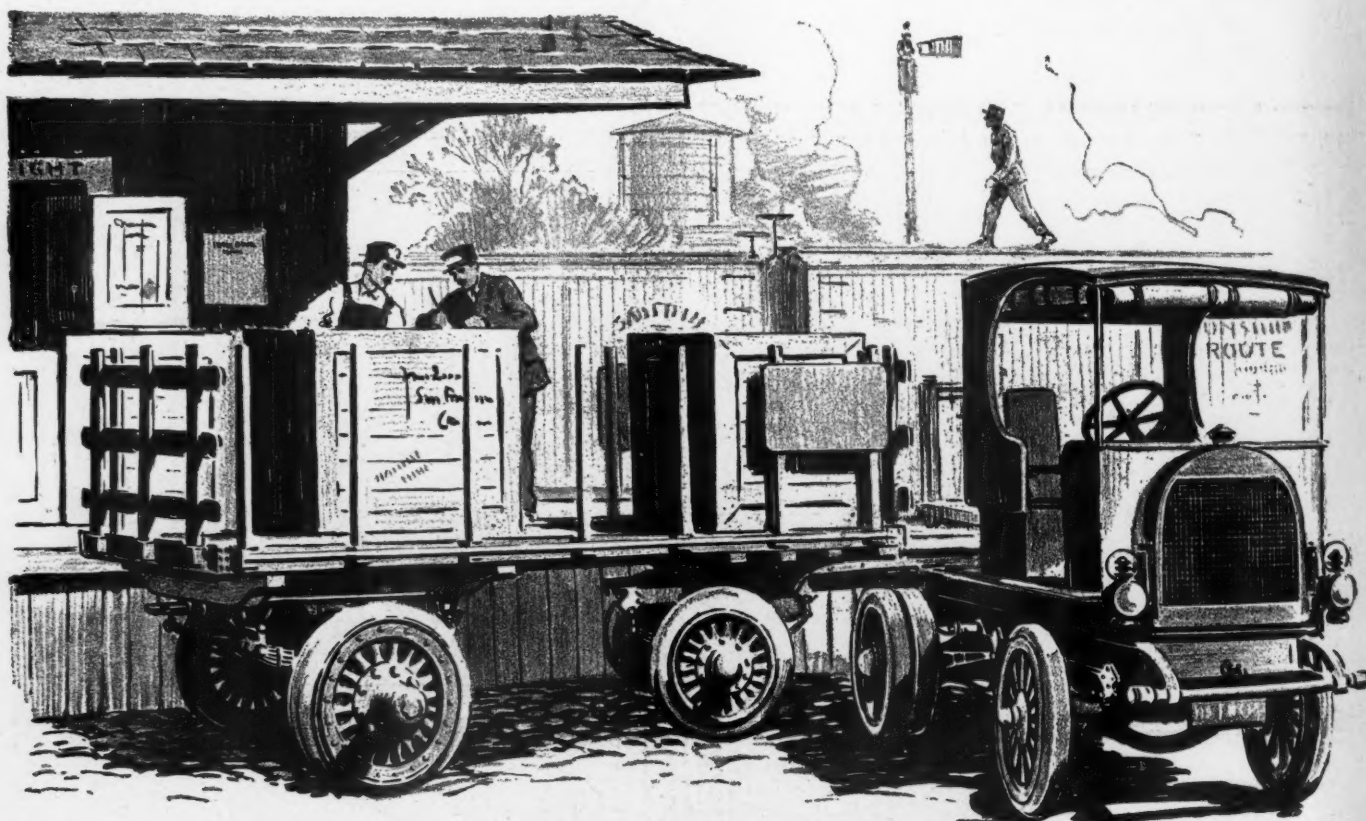
Neither do we believe that "tracking" is practicable for drawn vehicles. More than that, Watson engineers can prove the so-called tracking vehicle decidedly disadvantageous for difficult turning.

Let us present Watson Universal Trailer facts and our Business Building Plan for Watson Dealers.

Watson Wagon Company
46 W. Center St., Canastota, N. Y.

100% WATSON TRACTOR

The mastodon of the heavy-hauling field. Capable of drawing immense tonnage; yet as flexible as a little pleasure car! And economical! Write for details.



SRB

STANDARD CHROME ALLOY STEEL BALLS

These balls are gauged with extreme care and are positively guaranteed to have a commercial accuracy of 1/10 part of one thousandth of an inch (.0001") in both diameter and sphericity, thereby meeting the most exacting demands

for **ACCURACY**

STANDARD ROLLER BEARING CO.

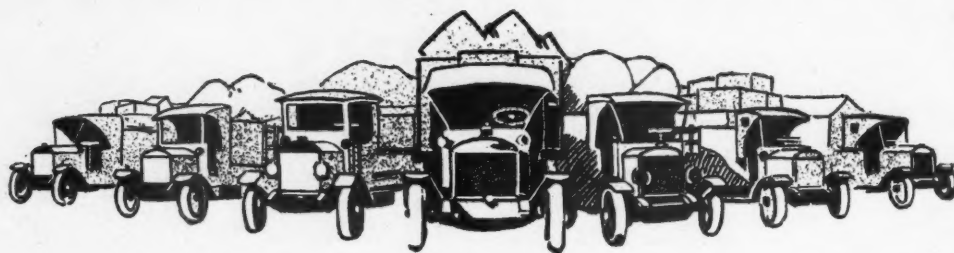
PHILADELPHIA, U. S. A.

SALES OFFICES:

Detroit,	936 Woodward Ave.
Chicago,	2206 S. Michigan Ave.
Indianapolis,	822 Hume-Mansur Bldg.
New York,	1737 Broadway
Boston,	159-A Massachusetts Ave.
Cleveland,	2062 Euclid Ave.
San Francisco,	41 Spear St.
St. Louis,	3126 Locust St.

Makers of SRB Annular Ball Bearings, Taper Roller Bearings, Steel Balls and Rudge-Whitworth Wire Wheels.

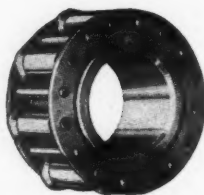




Truck Owners Know the Value of Simplicity

Bower Roller Bearings are of simple, yet scientific design. Consisting of cylindrical roller with a flanged head at one end, this bearing reduces friction to the minimum. The constant, heavy, radial load is carried by the entire length of the roller. The side thrust is carried separately by the flange. Hence, the roller is self-aligning and always runs free.

Because of their simple, trouble-proof construction, and because Bower Bearings never need adjustment, they are prime favorites with truck owners.



BOWER

ROLLER BEARING CO.
Detroit Michigan

MOST MILES FROM FUEL FEWER TRUCK TROUBLES



Miles—Minutes—Tonnage—those are the things that *make* you a profit or *cost* you a loss. With a

New Stromberg Carburetor for Trucks

—on your truck—you'll find *all three* on the *right side* of your ledger. You get most mileage—because it gives most perfect fuel mixture. You *have* fewer troubles—because of simplicity of carburetor construction.

You handle greatest tonnage, because it enables trucks to cover most ground and carry heaviest loads. Proof of this has put the New Stromberg on a 41% of all listed Truck Models.

*Write today—NOW—for Stromberg Records—Descriptive Matter
—evidence of extreme economy—and Money-Back Trial Offer*

Stromberg Motor Devices Co. Dept. 936 64 E. 25th St., Chicago, Ill.

New STROMBERG Does it!
CARBURETOR

Stewart

MOTOR TRUCKS

why Stewarts are "essential"

Not merely because thousands
of them are helping to relieve
the railroads ~ ~ ~ ~ ~

But because - they work with
an economy of tires and gas -
"20% less cost-to-run", say
Stewart owners ~ ~ ~ ~ ~

¾ ton - \$950 1 ton - \$1375

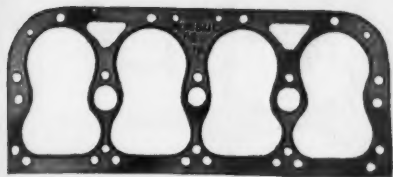
1½ ton - \$1975 2 ton - \$2575

3½ ton - \$3500

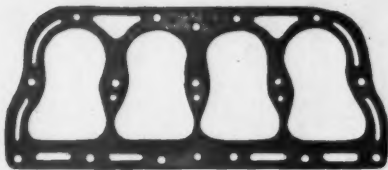
All prices f.o.b. Buffalo

Stewart Motor Corporation
Buffalo, N.Y.

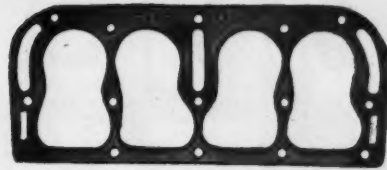




REPUBLIC



OVERLAND



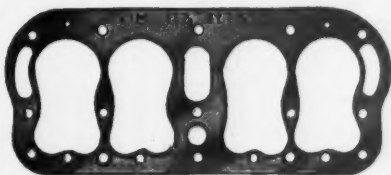
MAXWELL

SAVE MONEY

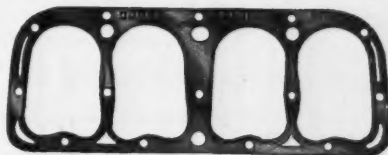
BY USING

NEVER-LEAK

Cylinder-Head Gaskets



VIM



DODGE

The Never-Leak is not only the best gasket, but it costs less than other good ones. Thus you can make more money on gasket replacement jobs by using Never-Leaks and yet give your customer an unbeatable job.

Every truck is badly needed in service. Engine repair jobs are increasingly frequent. Every hour lost is costly. Be on the job with a stock of Never-Leaks for popular commercial cars and give your customers a prompt service that will boost your business.

We carry in stock at all times a complete line of truck and pleasure car gaskets. We also make gaskets to order.

Send for our gasket price list. Address Gasket Dept.

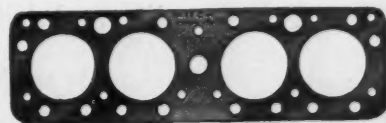
The Fitzgerald Mfg. Co. Torrington, Conn.



CHEVROLET



SAMSON

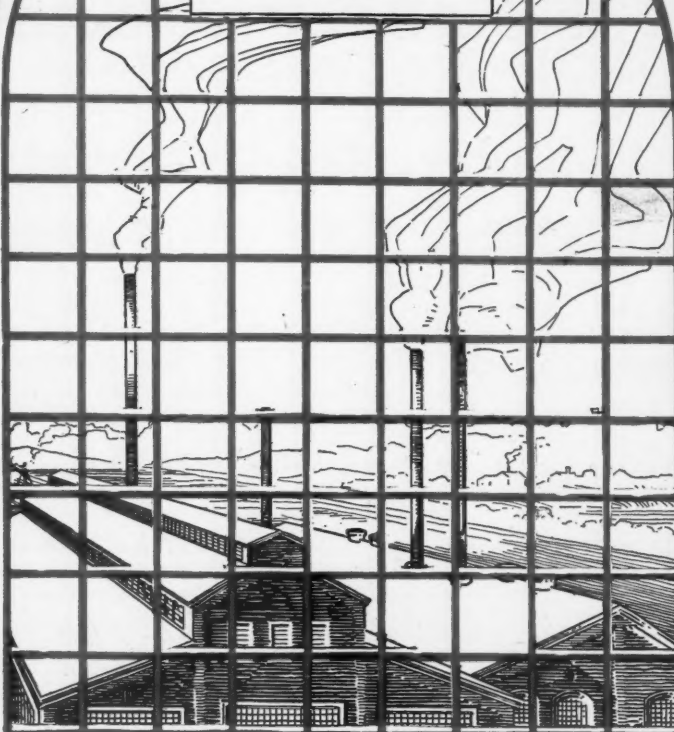


BUICK

O BEN BERGER FORGINGS



THE MARK THAT STANDS
for
O BEN BERGER SERVICE



Stand for the highest type of endeavor in a field in which they are pre-eminent.

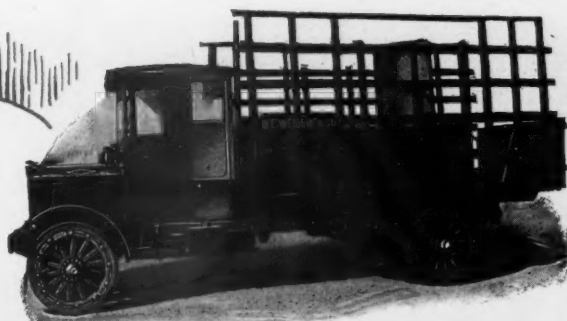
A ripe experience, covering a number of years, has brought this plant and its personnel an enviable record for good work and square dealing.

We offer our services to makers of trucks, tractors and passenger cars whose requirements cover drop forgings or forgings hammered from billets.

Price, quality and delivery will appeal to the most captious.

JOHN O BEN BERGER FORGE CO.
WEST ALLIS WISCONSIN

"Specialists on Forgings for Truck, Tractor,
Automobile and Engine Forgings"



BESSEMER

BUILD YOUR BUSINESS

on a strong foundation. The trucks you sell will speak for themselves—and for you. See to it that what they say will be to their own credit—and to yours. Otherwise your business cannot develop—more, it cannot last.

These are days that try the best of trucks—and only the best can endure. Trucks of service are not built over night. They are not built in factories that “contract for outputs.” They are the products of years of existence and work.

BESSEMER TRUCKS started to work ten years ago—some of the first are still in service. It is this test of age that sums up in sterling worth, endurance and dollar-for-dollar value to the owner.

The whole story of Bessemer prestige and popularity boiled down is: These trucks are, and always have been, creations of Bessemer design and construction. They are not get-rich-quick trucks, but rather honestly produced and priced products.

DEALERS: This is the kind of a truck to handle. It will beget confidence that will make more sales. Start

right by handling Bessemer trucks. Stop where you are and sell Bessemer trucks—that is, if you are on the wrong track.

Write for our splendid dealer plan. You will not regret it.

Model G—1 ton
Internal-Gear Drive

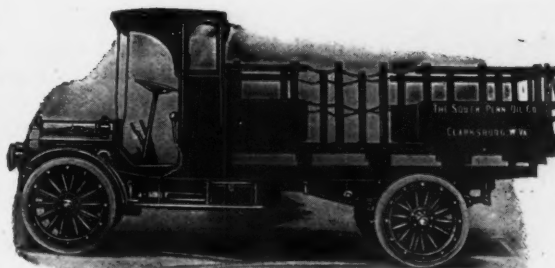
Model H—1½ ton
Internal-Gear Drive

Model J—2 ton
Internal-Gear Drive

Model K—3½ ton
Internal-Gear Drive

Bessemer Motor Truck Co.
Grove City, Pa.

Bessemer Truck Co., Buffalo, N.Y., Western N. Y. Distributors
Metropolitan Motor Truck Co., Minneapolis, Minn., Middle
Northwest Distributors



TRUCKS

**"Go On—Beat It
No Chance For You
To Get This One"**



Walker-Badger Truck Jacks quickly capture the confidence of users.

They *must* make good. No expense—no care—has been spared in the development of greatest power and strength ever built into a Jack. Only toughest, most durable metals are employed. Drop-forged steel pawls—that refuse to break. Every piece and part machined in gigs and fitted with accuracy that gives free, easy action. Equipped with automatic lock with a bulldog grip that never weakens. If breakage occurs, a new Walker-Badger Jack will be supplied free of cost.

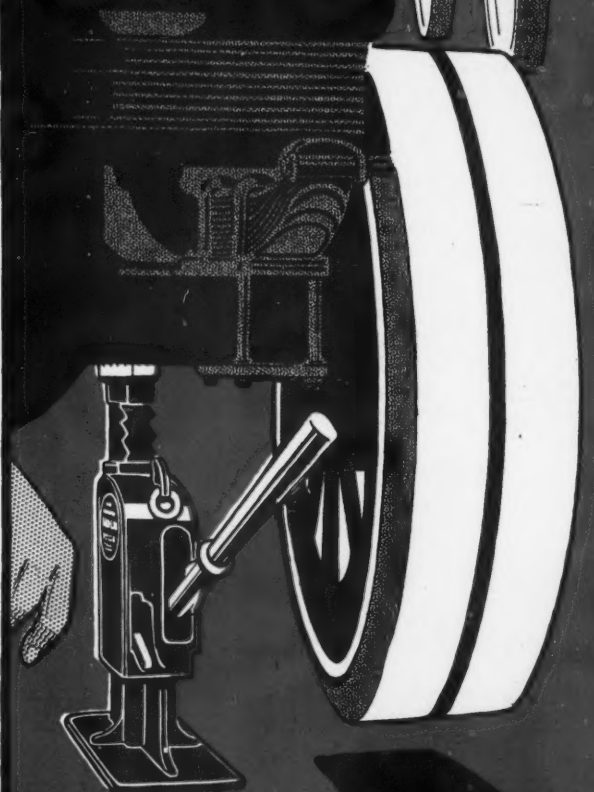
Tested to lift more than the rated capacity. Jacks so thoroughly good they are strangers to the scrap heap.

Truck Manufacturers who realize the importance of supplying equipment equal in quality to that of their product, should write for a copy of our catalog and prices.

All told, there are 12 strong, sturdy members in the Walker-Badger Jack Family—"A Jack for every Job."

Dealers who are interested in increasing profits should get acquainted with them **Now**

WALKER MFG. CO., 30 Hamilton Street, Racine, Wis.



**WALKER
BADGER
TRUCK JACKS**

One of Five Better Reasons for Sandow

which give you a big selling force after all the merits of all other high-grade trucks have been exhausted.

SANDOW

Quick Demountable Motor

It takes less than one hour to remove the motor from a Sandow truck. In another hour the motor can be replaced.

Concerns using Sandow trucks in fleet equipment can carry an extra motor in their service department. If they want to overhaul a motor in any truck, the truck is laid out of service less than two hours.

In other trucks from 12 to 36 hours is required to take the motor out and put it back again.

The front end of the motor in the Sandow truck is suspended, as shown in the illustration.

The rear end is suspended in the Sandow Motor Rocker Block.

This suspension is covered by patents and is exclusive in the Sandow.

Actual money saving alone obtained through the motor suspension in Sandow Trucks may run as high as \$300 a year.

SANDOW MotorRockerBlock

Eliminates broken motor legs and cracked crankcase.

SANDOW Power Increaser

Saves horse power wasted by ordinary mufflers.

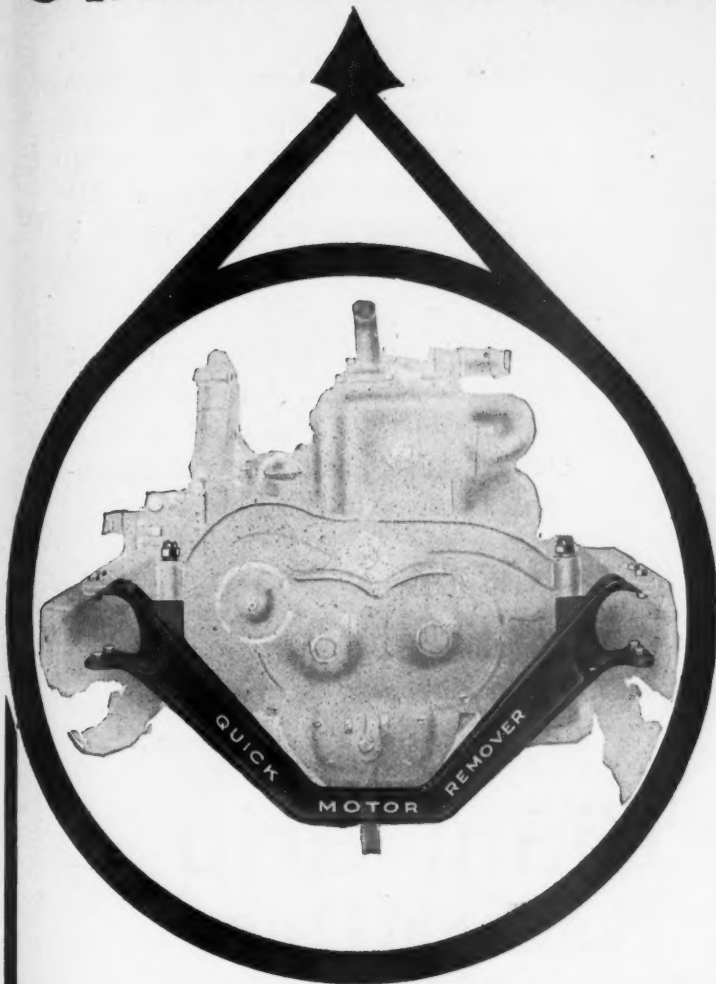
SANDOW Safety Starter

Saves back fire, broken arms and laid-up drivers.

SANDOW Steel Cross Member

Bridge truss construction at point of maximum strain.

Write for details of these exclusive Sandow features
Seven years of building trucks for America's leading industries guarantee your satisfaction in the Sandow



Automobile Dealers — Stay in Business

It requires only a change on your windows to take you from the passenger car dealer, with nothing to sell, to a truck dealer with real sales waiting. In the Sandow you get a complete line.

SIX SIZES: 1, 1 1/4, 1 1/2, 2, 3, 3 1/2 and 5 tons

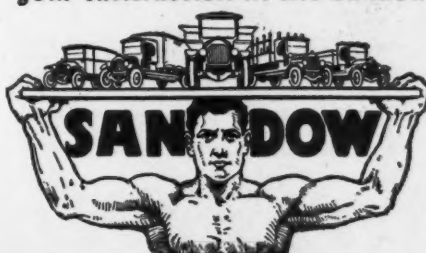
Send coupon today for dealer proposition in your territory

The Sandow Motor Truck Company is an established organization favorably known, and building a product for which there is a big demand.

SANDOW MOTOR TRUCK CO.

Dept. 2

Chicago, Ill.



Trade-Mark Registered

SEND COUPON CCJ

SANDOW MOTOR TRUCK CO.

Dept. 2, Chicago, Illinois

Send me your proposition to

- ☐ Dealers
- ☐ Distributors
- ☐ Users

Nature of business.....

Name.....

Address.....

The Best Proposition Yet for the Dealer!

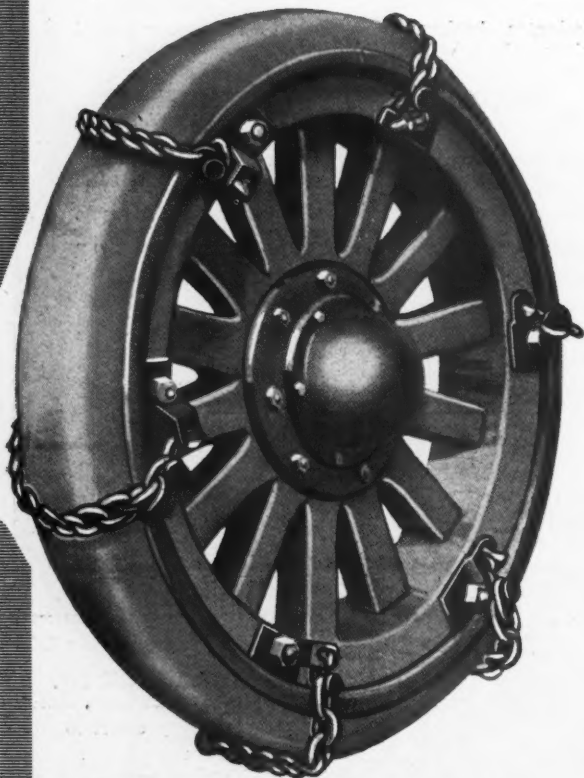


Three sizes of Giant Grip Non-Skid Chains will equip 90% of all trucks in service. This means small stock for the dealer to carry. He need not have money tied up in a large assortment of chains.

Every dealer can readily see what this means to him. He can always supply the **right** chain when it is wanted. His customers will appreciate a service of this kind.

"Giant Grips" are the strongest, safest, simplest and most easily attached truck tire chains ever made. Here are some exclusive features that are well worth considering.

Giant Grip Non-Skid Chains *for Motor Trucks*



Uni-Kink, a felloe clamp chain, that solves the problem caused by extended brake drums

- | | |
|---|---|
| 1—On or off in a jiffy. | 6—Chains are adjustable for taking up slack. |
| 2—No tools required. | 7—Instantly accessible. |
| 3—No long, kinky chains to unravel. | 8—No snap locks to rust tight, fly open or cause trouble. |
| 4—Attached in deepest mud or snow without use of jack. | 9—Only entirely heat-treated, drop-forged grips made. |
| 5—Economical because carried in tool box when not in use. | 10—Mechanically perfect. |

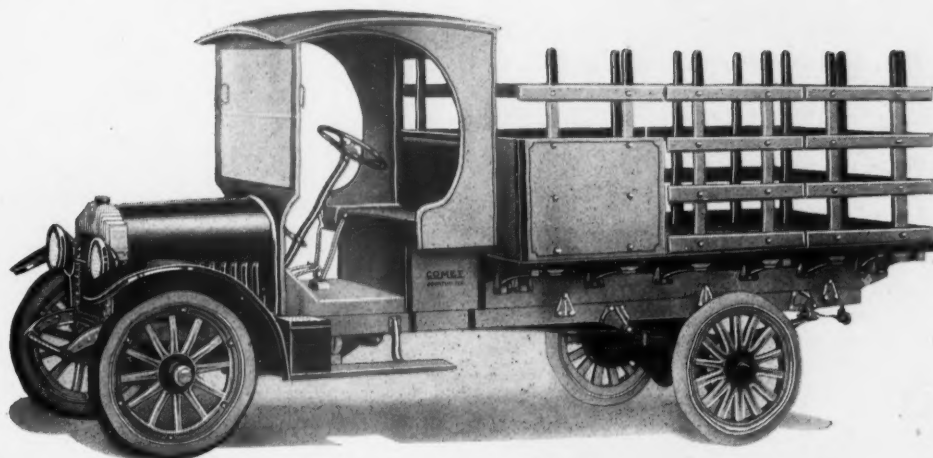
To ALL Dealers:

Secure the Giant Grip Agency now—get ready for big winter business. Trucks must be properly equipped with Giant Grips—you are the one to sell the equipment.

The selling season is but a few weeks away—ask your jobber, or write us for literature and data.

Challoner Company
Oshkosh

Established 1863
Wisconsin



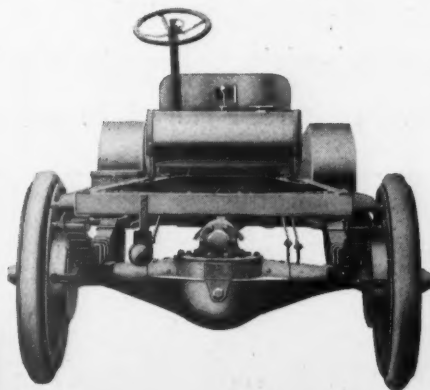
COMET

1/4 TON WORM DRIVE TRUCK

OFFERS EXCEPTIONAL VALUE, POSSESSING THE MANY QUALIFICATIONS DEMANDED OF THE KEEN AND PROGRESSIVE TYPE BUSINESS MAN. EQUIPPED WITH A 38 H. P. MOTOR, BORG & BECK DISC CLUTCH, TRIPLE THREAD WORM DRIVE, ELECTRIC STARTER, ELECTRIC LIGHTS, BALL BEARING TRANSMISSION, PNEUMATIC TIRES FRONT, SOLID TIRES REAR, RATIO 7 3/4 TO 1, WHEELBASE 130 INCHES.

Chassis \$1575.00, Decatur

**PROPOSITION
FOR
PROGRESSIVE
DEALERS**



**PROMPT
DELIVERIES
ADDRESS
DEPT. A**

**The Comet Automobile Company
Decatur, Illinois**

The Green Signal

War materials are the only shipments that have the right of way on the railroads—others must wait their turn.

Bethlehem Internal-Gear Drive Motor Trucks have the green signal on all roads. There are no waits—no delays—they stand up and deliver.

1½ Ton Chassis
\$1765

2½ Ton Chassis
\$2165

3½ Ton Chassis
\$3265

F. O. B. ALLENTOWN

Gray and Davis Electric Starting and Lighting is standard on all models

Take everyone's advice and examine a Bethlehem

Is your territory closed? Wire us and find out!



The Motor
Truck bought
to-day without
Electric Starting
and Lighting
will be out-
of date
to-morrow

BETHLEHEM
Internal Gear Drive
MOTOR ★ TRUCKS
Dependable Delivery

BETHLEHEM MOTORS CORP'N. ALLENTOWN, PA.

The Motor
Truck bought
to-day without
Electric Starting
and Lighting
will be out-
of date
to-morrow

It
Tames
the
Trailer



Control
in
Line or
Angle

As shown above, the trailer stands loaded, supported by the brake—the truck, equipped with the **BORST FIFTH WHEEL TRAILER CONTROL** backs under, lifting the weight off the brake, throws the slanting fifth wheel into horizontal position—and you are ready to be off.

But the big *revolutionary* feature of this control is “control” of the trailer at the driver’s will—either locked rigidly in line with the truck, or pivoted to allow the two to be at right angles, or any flexible intermediate position.

This simply means quick backing into terminals, quick loading and unloading, and quick and effortless coupling and uncoupling.

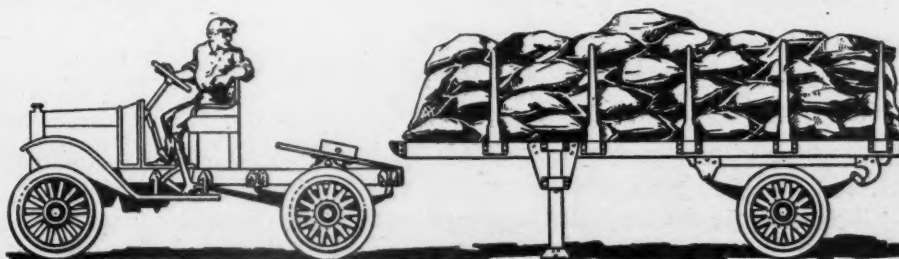
THE BORST FIFTH WHEEL TRAILER CONTROL

has made the trailer a practical, paying load carrier. Heretofore, lost time, wear and tear on a swaying trailer have both made it doubtful as a paying proposition.

Trailer Manufacturers: This equipment will double the value of your product and cut sales resistance in half.

Truck and trailer dealers should get our selling plan. This control is a much-needed improvement, and is finding heavy demand wherever introduced. Write for details.

The Borst Coupler Control Company
1186 Main Street Buffalo, New York



OHIO

• STEEL • CASTINGS •

THE sterling character of materials, careful analysis, scientific heat treatment, the high standard of skill maintained and the large and impressive array of ever busy equipment, gives in the final analysis the correct Ohio Castings formula:

**"Knowledge + Skill + Facilities =
Castings of Solid Integrity"**

Ohio Castings are unequalled in Truck, Tractor and Trailer construction. Our Springfield Plant specializes on fine castings with high crack-resisting power.



QUALITY  SERVICE

THE OHIO STEEL FOUNDRY CO.

• BUCYRUS, O. • SPRINGFIELD, O. •

• LIMA, O. •

Sterling

HEAVY DUTY TRUCKS

Economy Deliveries

Vibration and Upkeep Reduced to Minimum

—by exclusive wood-inlaid, shock-absorbing frame—no constant hammering on steel alone.

—Bolts that stay tight take the place of rivets that work loose and rattle.

For heavy duty the Sterling 7 ton, chain drive dump truck is performing wonders in motor transportation all over America.

Great simplicity and sturdy construction.

Over 300 less parts than most trucks.

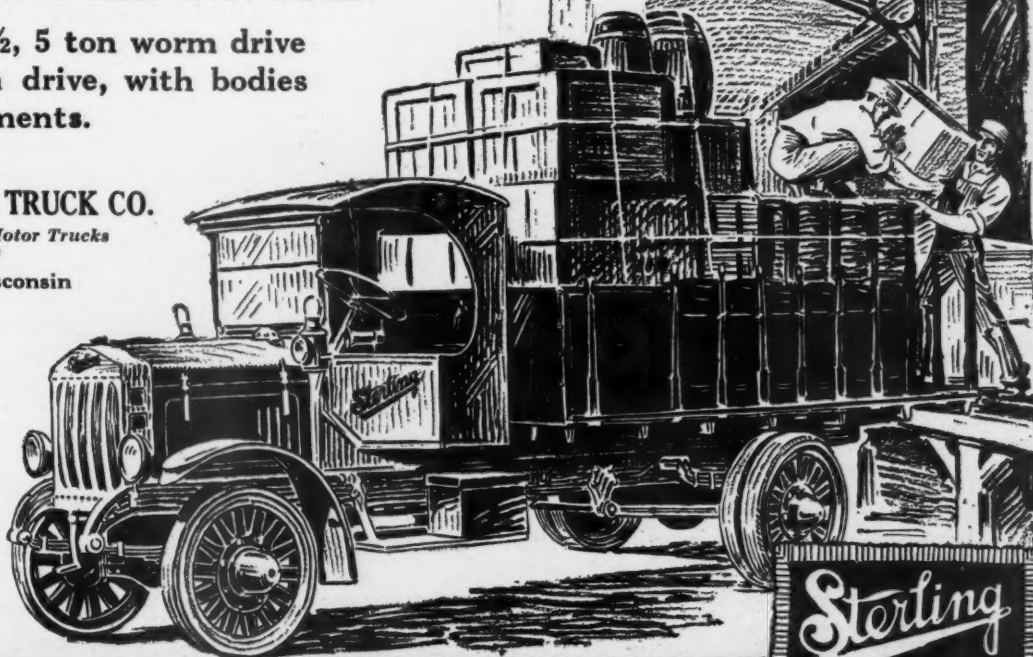
Built in 2½, 3½, 5 ton worm drive and 7 ton chain drive, with bodies for any requirements.

STERLING MOTOR TRUCK CO.

*Exclusive Builders of Motor Trucks
for 11 years*

Milwaukee, Wisconsin

**Write for
Complete
Information**



Sterling
TRUCKS

WHAT ABOUT THE HIGHWAYS?

What we do in this war is definitely limited by our transportation facilities. Railroads and highways are now wholly inadequate. But only our highways are capable of quick and flexible expansion. *Permanently constructed road systems*, which will stand heavy motor truck traffic and connect main producing centers, are as necessary to winning the war as are ships and guns.



A Main Highway "Somewhere in Pennsylvania"

Industry has been hampered because railroads could not carry the fuel and raw materials needed for the vast output of war. Motor trucks have had to go to the relief. But motor trucks cannot operate efficiently nor economically without a hard, even road surface that remains so in all kinds of weather.

Commerce of war has first call on our railroad facilities. Other business will have to take its chances. Short-haul rail traffic will be discouraged if not prohibited. Without interurban truck service over our highways, merchants will run short of goods and the consumer will feel the pinch of doing without.

Agriculture is making records to keep a steady stream of foodstuffs flowing from farm to shipping point and from shipping point overseas to feed our army and our allies. We at home must rely more and more upon perishable produce which cannot be shipped abroad. But a steady and abundant supply in city markets cannot be assured unless motor trucks can operate at speed over roads which are passable every day in the year.

Labor is short. Every worker left at home has double duty to perform. Machinery must be made to multiply man power. Fast-moving and heavily laden trucks must replace teams and drivers — *provided the roads permit*. In this way time will be saved and many more men released for war needs.

War means quick movement of marching troops, endless motor truck trains, heavy batteries of cannon. And quick movement means broad, hard, even roads. Military authorities in this country have repeatedly called attention to our lack of strategic highways so solidly built that they can stand the weight and speed of military maneuver. Concrete roads should radiate from training camps, forts, munition, industrial and producing centers like the spokes of a giant wheel. They may some day prove our defense against hostile invasion.

Most war production is finally and completely consumed—wasted. Not so with the effort expressed in roads of concrete. They are an enduring asset destined, both in war and peace, to play as important a role in the development of national welfare and wealth as did the railroads in an earlier era.

What it costs to build important highways of concrete is a small item compared with what they earn. The labor required is nothing compared with the man power they release and the wealth they create. Railway equipment needed for hauling the necessary materials of construction is an infinitesimal part of the transportation facilities they provide. **Concrete roads are now needed to help win the war.** They mean investing money in permanent construction instead of wasting it in temporary repairs.

PORTLAND CEMENT ASSOCIATION

ATLANTA
CHICAGO

DALLAS
DENVER

DETROIT
HELENA

INDIANAPOLIS
KANSAS CITY

MILWAUKEE
MINNEAPOLIS

NEW YORK
PARKERSBURG

PITTSBURGH
SALT LAKE CITY

SAN FRANCISCO
SEATTLE

WASHINGTON, D.C.

CONCRETE FOR PERMANENCE

POLACK TYRES



**10,000 MILES
GUARANTEE
INVARIABLY
EXCEEDED**

WHETHER used in destructive military service or in the peaceful pursuit of commerce, Polack Tyres have a strength, resiliency and durability that make them the choice of those who insist on having tires upon which they can rely.

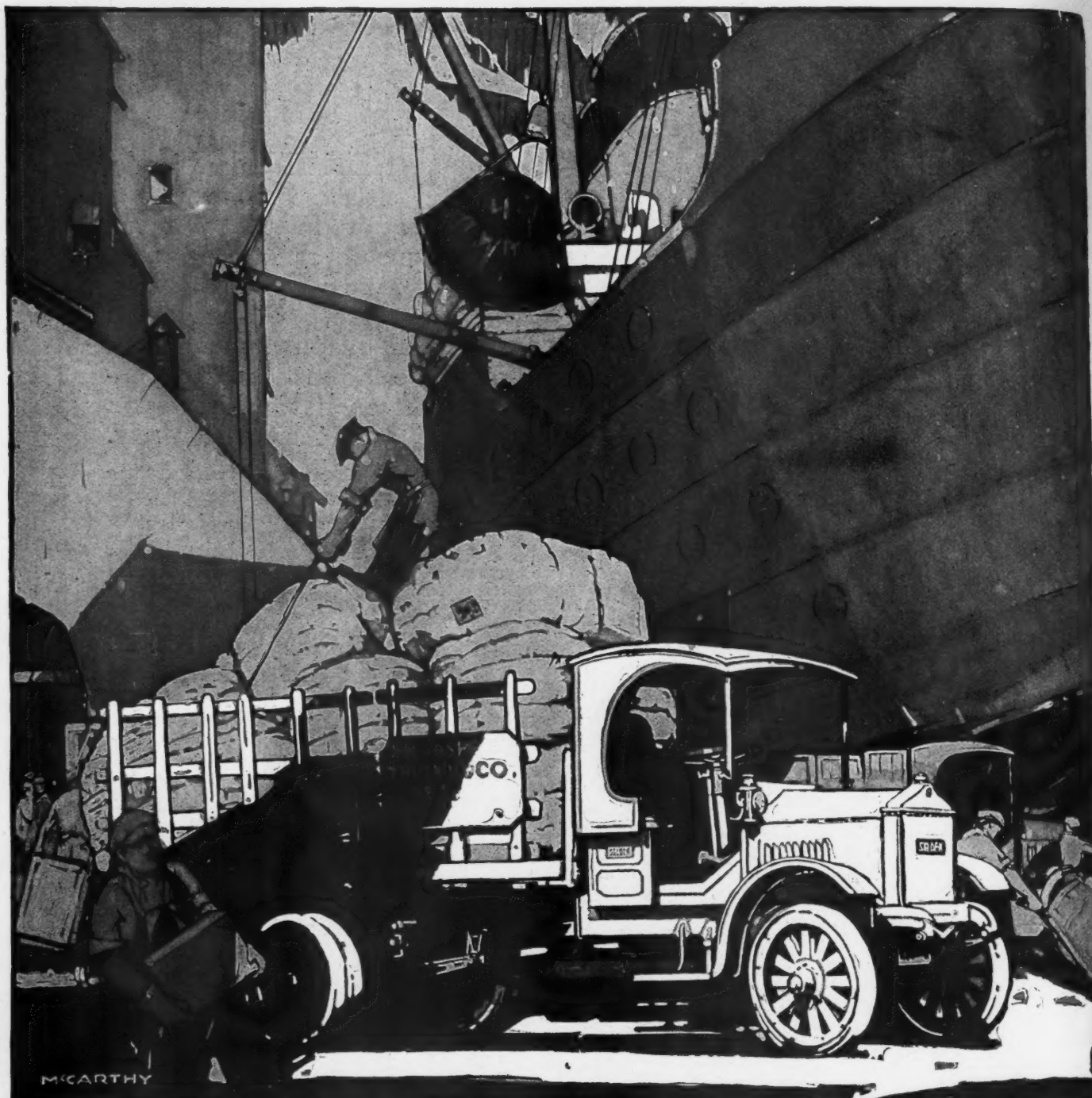
Polack quality is such that the unusual guarantee of 10,000 miles is invariably exceeded.

They are good tires to sell, because every sale creates others.

Polack Tyre & Rubber Co.
Broadway and 62nd St.
New York

EUROPEAN SECTION

Selden Trucks

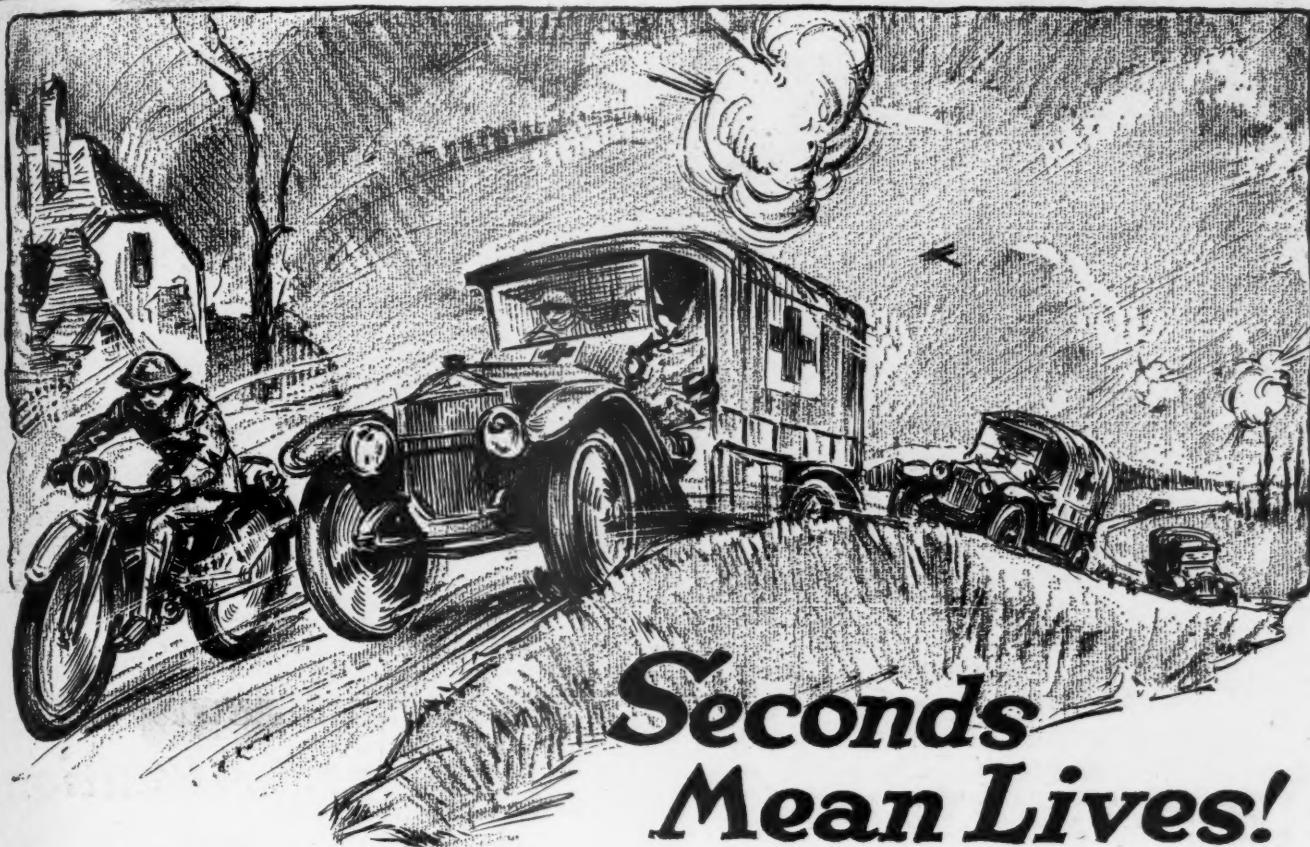


Whenever THE POWER TO ENDURE CONTINUOUS HARD SERVICE AT LOW OPERATING COST was the requirement of the hauling job, no Selden Truck ever failed to render PROFITABLE SERVICE.

1, 2, 3½ and 5 Ton Worm and Internal Drive Models. Write for Full Information.

SELDEN TRUCK SALES COMPANY

ROCHESTER, N. Y., U. S. A.



Seconds Mean Lives!

IT'S the seconds saved that count big—get the wounded to the surgeon—quick—and rush back for another load.

Rough roads—rocks—ruts—sudden starts and stops *demand* a differential that is dependable in all emergencies.

Since the old bicycle days this has been repeatedly proved true of

BROWN-LIPE-CHAPIN DIFFERENTIALS

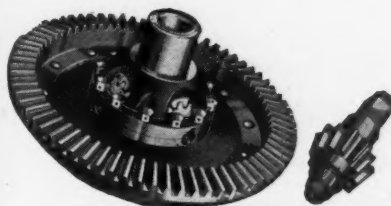
Particulars will be furnished to owners, dealers and manufacturers on request

**BROWN-LIPE-CHAPIN CO.
DIFFERENTIALS**

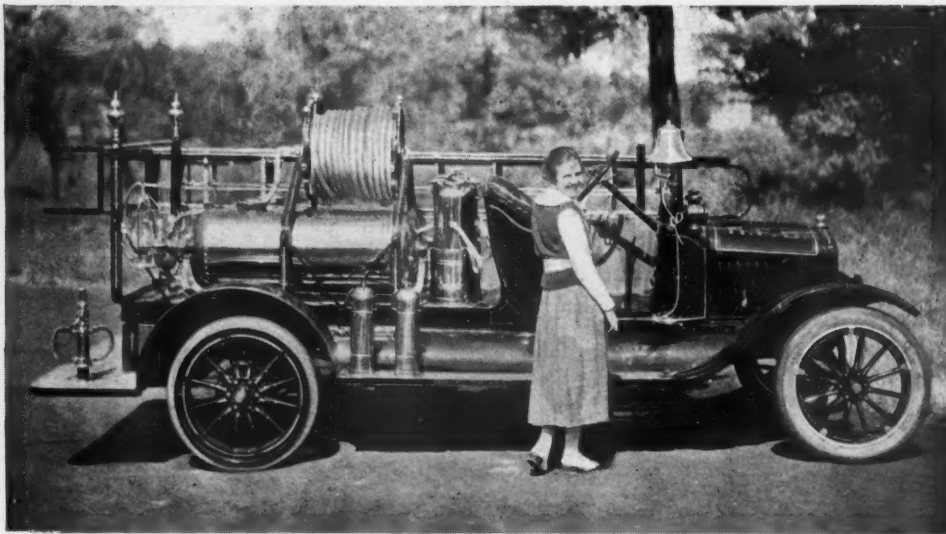
Syracuse :: :: N. Y.

REPRESENTATIVES:

San Francisco: A. H. Coates, 41 Speare St.
Foreign Agent: Benjamin Whittaker, 2 Norfolk St., Strand, London, W. C.

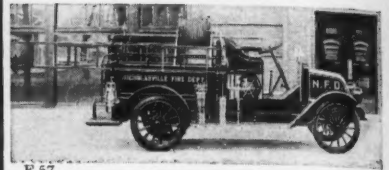


Bevel-Drive Differential for 1-ton Trucks, as used by General Motors Truck Co.



281

Ford-Northern



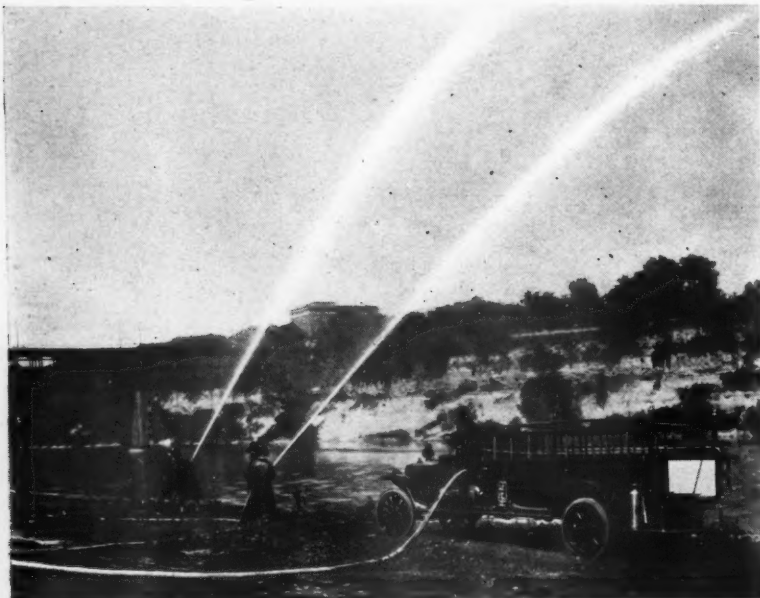
F 57

Chase-Northern



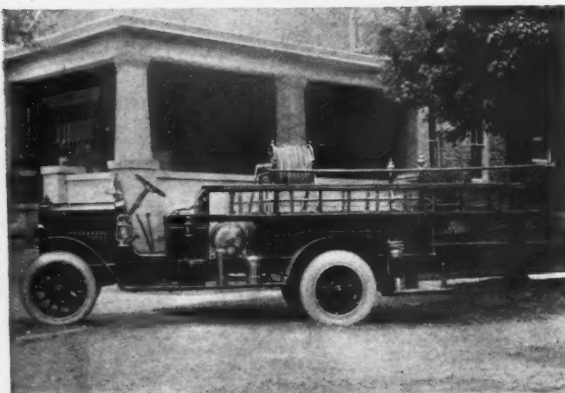
F 52

International-Northern



F 86

Republic-Northern Equipped With Pump



F 87

Nash-Northern

Commercial Car Dealers, Attention:

We have built fire equipments for over twenty-five different makes of chasses. We can build one to fit yours.

Over two hundred dealers have made extra profit selling their chasses

Northern-equipped to towns in their territory.

Are you getting your share of this money-making business?

Let us help you. A postal will bring our catalog.

Sell More Chasses

Make More Money on Each Sale

Northern Fire Apparatus Company

Minneapolis

Branch: Cleveland, Ohio

Minnesota

Photographs of Four Hundred International Motor Trucks



THESE are times when the common-sense design and enduring construction in **International Motor Trucks** are taking advantage of a real opportunity to prove their worth. With the transportation and hauling facilities of the nation under a continual strain, motor trucks are being made to suffer hard treatment, to give service or to fall down under the most trying conditions, to deliver mileage and yet keep hauling costs down.

If you will inquire you will find that the Internationals in your section are pleasing owners with their performance, working economically and reliably. That is the habit of the many thousands of Internationals in every section. We have ready an attractive 144-page book, containing nearly 400 illustrations made from photographs showing Internationals in service in almost every conceivable line of business and with suitable bodies for all hauling requirements. It contains also illustrated description of the various models, and lists the 90 branch houses through which we effect convenient distribution and which help us to give service to dealer and owner. This book will be sent to your address on request.

International Motor Trucks will positively fill the bill for any firm. They are made in 1500, 2000, 3000 and 4000-pound capacity sizes. Prices range from \$1550 to \$2650 for the chassis (cash f.o.b. factory).

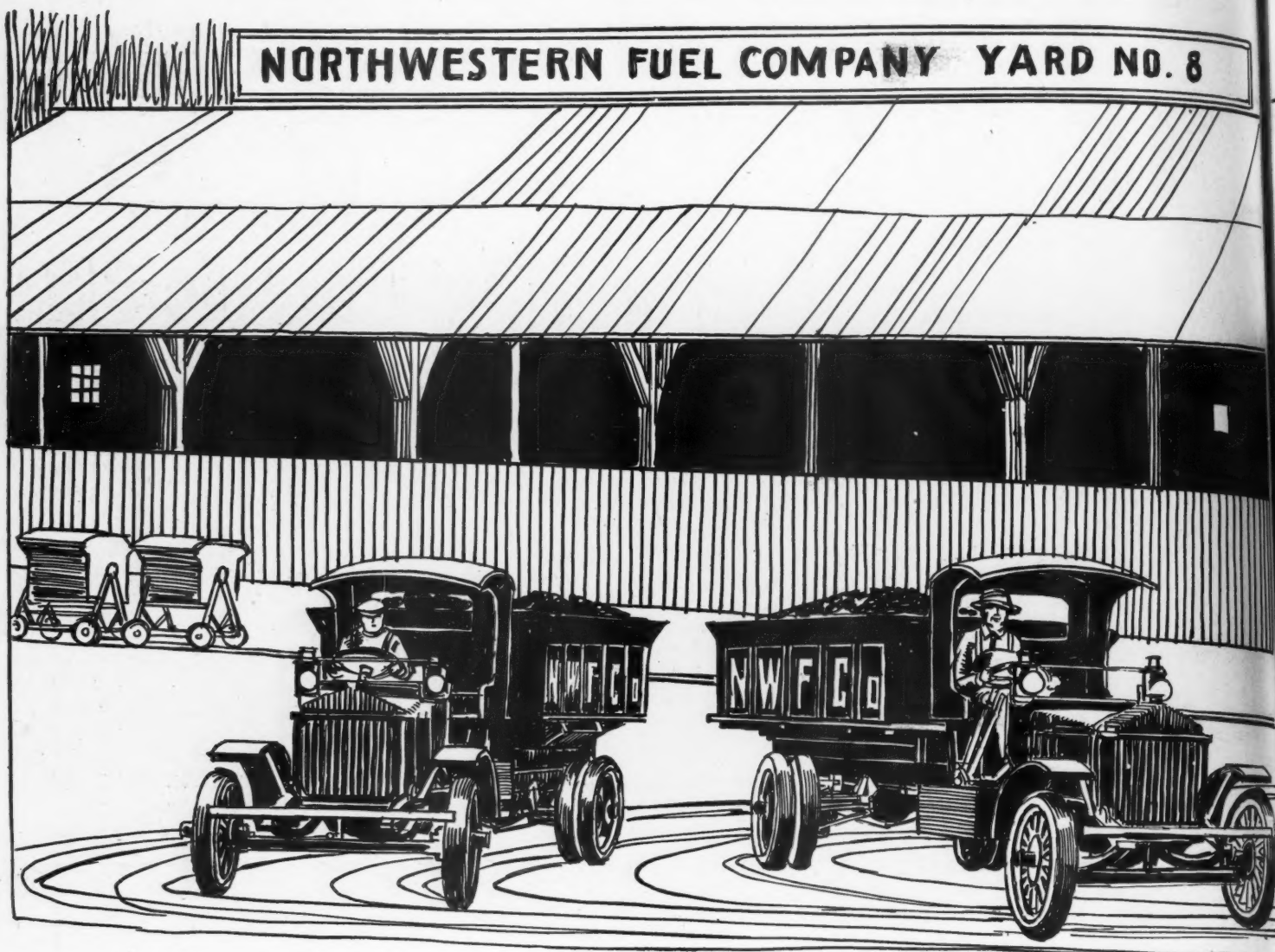
International popularity grows fast. Write us—open territory is rapidly being taken by dealers who realize the present and future value of an International Motor Truck contract.

International Harvester Company of America

(Incorporated)

182 Harvester Building

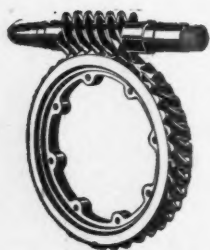
Chicago U S A



In the severest winter on record these trucks worked every day

The North Western Fuel Company had proved to its own satisfaction the thorough reliability of their fleet of Pierce-Arrow trucks before, but they proved it to the satisfaction of everyone in the Northwest in the past winter weather, the severest on record, when the trucks did their regular work each day, through deep snows and blinding gales that taxed the railroads beyond their capacity.

And no truck made a better record in the blizzard than their first Pierce-Arrow, bought October, 1911, in service in Duluth.



PIERCE-ARROW

Motor Trucks

THE PIERCE-ARROW MOTOR CAR COMPANY, BUFFALO, N. Y.



Seven years old— it shows newcomers the way

This veteran Pierce-Arrow has some hills to climb in Duluth, in addition to bucking drifts, but no hill is too steep and no snowbank too deep for it. Its crew declares it's better than newcomers. However that may be, it's doing its work day by day like a two-year-old, without a sign of age or decay. It's got seven more full years before it.

The North Western fleet had an addition last December—and the baby Pierce-Arrow is doing very well, thank you, delivering the goods as consistently as the others. Incidentally, these trucks take a holiday in the Summer, and earn pin-money, hauling rock, sand, crushed stone and building supplies to keep their hand in.

PIERCE-ARROW

Motor Trucks



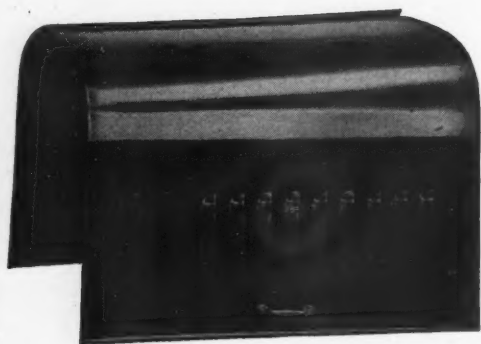
THE PIERCE-ARROW MOTOR CAR COMPANY, BUFFALO, N. Y.

APPEARANCE DOES COUNT

Ask the Truck and Tractor Dealers

Given trucks and tractors of even service values, it still stands that the design and character of hoods, fenders and other parts you **can** see, have much to do in making or spoiling sales.

Three of Our Leaders



York Sheet Metal Parts are unique and in many ways unusual, distinctive and "classy," if you please. They take away much of the rugged, awkward appearance of the undressed tractor, and they add a certain unusual visual improvement to the finer lined truck.

SHEET METAL SPECIALTIES

made here are the best products that materials, design and skilled workmanship can turn out. They will stand the closest investigation of designers who are producing high quality trucks and tractors.

We offer, in regular or special design, for both adornment and essential use, fenders, hoods, tanks, radiator aprons, sod pans, runningboard shields, tool and battery boxes, gear-wheel covers, and many other sheet metal parts.

Our enlarged plant gives assurance of deliveries as promised, and our promises will satisfy you.

We also make special parts over your design—in quantity lots only. Send us your production problems in these particulars.

York Corrugating Company

York

::

Penna.



Your Opportunity to Handle
a HIGH-QUALITY 1½ Ton
Internal-Gear Drive Truck

TRIANGLE TRUCKS

SPECIFICATIONS

Waukesha Motor, Eisemann Magneto, Stromberg Carburetor, Fuller Transmission, Universal Drive Shaft, Celfor Internal Gear, Rear Axle, Torbensen Front Axle, Detroit Bronze-Bushed Springs, Gemmer Steering Gear.

Wheelbase, 144 inches—Turning radius 23 ft. 6 in.—Tread, 56 inches—Clearance, front 9½ inches, rear 12¼ inches—Tires, front 34 x 3½, rear 34 x 6.

—this is the right capacity for meeting the requirements of the average business.

—this capacity is in the field of volume sales which means volume profits for you.

—this high quality in a truck of Triangle size, low price and low ton-mile cost is a forceful sales point—unique in this truck's capacity class.

We can make immediate deliveries. We can furnish you with all the help necessary to become firmly established in this fast developing line of business. Wire, or write for prices, complete specifications and dealer's proposition.

TRIANGLE MOTOR TRUCK CO.

St. Johns, Michigan



*The Seal of
Dependable Performance*

*Trade-Mark Registered
United States Patent Office*



The Golden Profit Opportunity *Sell the Acme Truck*

Today's conditions are such that the Acme Agency is a veritable dealer's gold mine. Truck demand is unprecedented, and the big, powerful ACME, with every unit a proved unit, actually sells on sight.

ACME proved units insure thoroughly dependable service under toughest conditions. And that's what counts most with truck buyers

today. ACME first costs are low—after costs lowest.

You cannot go wrong in selling the ACME, for Continental, Timken, Borg & Beck, and other such famous names back your judgment and your investment, insure your profits.

It will certainly pay you to write for the attractive new ACME dealer proposition.

Acme Motor Truck Co., 291 Mitchell St., Cadillac, Mich.

One to Four-Ton Models, Oversize in Capacity and Dimensions

LIST OF ACME PROVED UNITS

Continental Red Seal Motor
Timken David Brown Worm
Drive
Timken Axles
Timken Bearings
Borg & Beck Clutch
Rayfield Carburetor
Cotta Transmission
Centrifugal Type Governor
Detroit Springs
Stewart Vacuum Feed
Hayes Artillery-Type Wheels
Truck-Type Radiator
Eisemann High-Tension Mag-
neto
Ross Steering Gear
Blood Brothers' Universal
Joints

ACME

REG. U.S. PAT. OFF.

PROOF

Until quite recently, the Albert Johnson Coal Co., of Minneapolis, Minn., had hired three teams and drivers at a very moderate cost of \$335.00 per month, or about \$111.75 per month each, which is certainly much less than it would be safe to figure on at the present time.

It was decided upon to buy a truck, and the Acme was chosen. It was then found one truck not only did as much work as the three teams, BUT THAT THE DAILY VOLUME OF WORK SHOWED A SUBSTANTIAL INCREASE, while the expense account dropped from \$335.00 to \$115.55, a net saving of \$219.45, or almost \$8.50 per working day. Do you appreciate the full meaning of that? A yearly saving of \$2633.42, and a greater volume of business.

Why Careful Truck Makers Should Use **SCHWARZ WHEELS** IV—Freedom From Flaws



THE Schwarz Wheel is necessarily flawless. Even in the strongest and toughest wood afforded by nature, weak spots occur—but they cannot be hidden—they cannot find lodgment in the spoke or felloe, for when a billet is worked into shape, that flaw must be discovered.



Wood, comparatively inexpensive, offers no inducement for any manufacturer to pass on even an inch that does not have a clean bill of health.

Schwarz inspection methods are separate and combined insurance against a flaw of any character or size. Final inspection guarantees a perfect wheel.

Consider then, if you please, the perfect, flawless Schwarz Wood Wheel in service as compared with one in which may lurk air holes, sand holes, or other "faults," securely hidden until the break reveals them and marks them as the cause of the disaster.

Specify Schwarz Wheels



Detroit Office:
Thomas J. Wetzel
1832 Dime Bank Building

New York Office:
Thomas J. Wetzel
33 West 42d Street

STANDARD PARTS

Team Work Wins

By doubling and redoubling our efforts, and by utilizing our vast facilities and resources to the utmost, we are straining to take care of trade needs.

First for our consideration, however, comes the government's needs.

Our attitude in this matter is *your* attitude—in proportion as you help us serve the government, *you* are serving it.

Working together in this spirit we shall jointly aid our country and protect our mutual trade interests.

Standard Parts for Motor Cars, Trucks, Tractors, Airplanes, Motorcycles and Other Vehicles

Axles
Axles (dead rear)
Axles, trailer
Bock Bearings
Hubs

Perfection Springs
(regular and thin leaf)
Perfection Heaters
Stanweld Rims
and tubing

Other Stanweld Products

Rims—clinch-able and demountable for single and dual equipment
Clincher Rims
Detachable Rims for Wire Wheels, special
Millimeter Rims, all types
Rim Tools
Flanges and Fittings
Solid Tire Demountable equipment

Tire Bases in Demountable and pressed-on Channels
Brake Rod Assemblies, complete
Starting Cranks
Electric Welding of Parts
Exhaust Tubes
Bands S. A. E.
Formed Tubing
Forging for Convertible Trucks
Ignition Wiring Tubes

Lamp Brackets
Mast Sleeves
Oil Tubes
Radiator Rods
Starting Gear Rings and Boxes
Straight Steel Tubing
Steering Gear Tubing
Tail Pipes
Torsion Tubes
Truss Rods
Tubing (straight and formed)

We also manufacture parts for Bicycles, Firearms, Carriages, Wagons and Special Purposes

THE
STANDARD PARTS
C O M P A N Y

Executive Offices

- -

Cleveland, Ohio

DIETZ "COLD BLAST"

STEEL MOTOR TRUCK LAMPS



Dietz "Champion" Side Lamp

DIETZ "COLD BLAST" STEEL MOTOR TRUCK LAMPS appear in specifications of the most popular trucks, year after year, because the trade-mark "DIETZ" has stood for superiority, dependability and serviceability for over seventy years.



DIETZ LAMPS HAVE BEEN USED ON THE AUTOCAR FOR ELEVEN YEARS

We make a complete line of oil-burning Steel Motor Truck Lamps
Send for our new catalog

R. E. DIETZ COMPANY
SIXTY LAIGHT ST. NEW YORK, U. S. A.

James Barnes, Sales Agent
Carter Bldg. Rochester, N. Y.



If The World Ends January First—What Then?

Well, let us live while we live. If after January First, the manufacture of motor cars should have to be discontinued because the government wants the steel, there's no use crying about it.

We must just accept the decree.

But the war will end sometime, and when that time comes, there'll be a scramble to get back into our regular lines of business.

The wise dealer will mend his fences and plan against that time.

He will take advantage of his rival's lassitude to secure a line that will guarantee him a permanent and profitable business.

But meantime, he will take advantage of present conditions and get every last car he can from the factory output between now and January 1st, so that if the worst comes to the worst, he will have cars to supply his trade for several months yet, when there will be a tremendous demand and—no competition.

These times test the metal of men—manufacturers and dealers.

Men who maintain their balance will make money and lay a solid foundation for the future.

Don't overlook the fact that every car you sell now makes another permanent customer for your garage—for accessories and supplies. And that alone can be a pretty profitable business if you have enough of it.

Maxwell Motor Company, Inc.

Detroit, Michigan



OAKES EFFICIENT COOLING FANS

**Manufacturers
Using Oakes Fans
as Equipment**

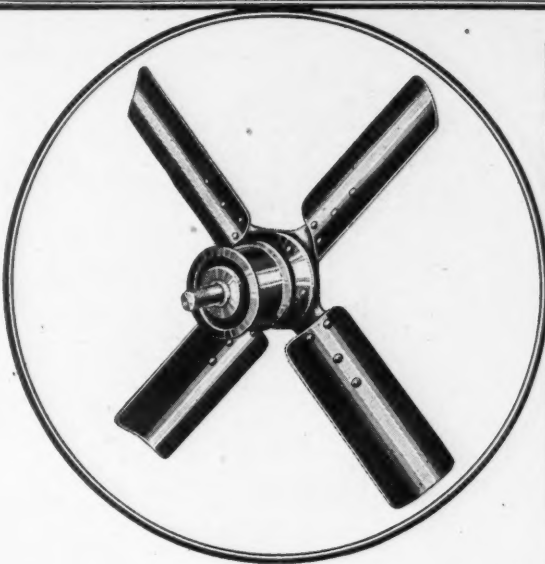
TRACTORS

U. S. Military
Avery
American
Appleton
Austin
Albert Lea
Bates Steel
Mule
Beltrair
Chase
Cleveland
Tractor
Deere
Dill
Common Sense
Farm Horse
Fitch
Four Drive
Galloway
Geneva Wheel
Heider
Holt
Huber
Happy Farmer
Hackney
International
Harvester
Interstate
Illinois Silo
J. T. Tractor
Knickerbocker
Kardell
Lyons Atlas
Moline Plow
Monarch
Massey-Harris
National
Nichols Shepard
Nilson
Prairie Dog
Port Huron
Russel
Sandusky
Square Turn
Strait
Strite
Stutes-Maar
S. K. & S.
Topp Stewart
Turner
Simplicity
Trundaar
U. S. Tractor
Unitractor
Wallis Cub
Waterloo Boy
Wichita
Wisconsin
Depue Ebert
Lion Linn
Liberty Leader
Parrett Peoria

MOTORS

Buda
Continental
Climax
Doman
Duesenberg
Erd
G. B. & S.
Hinkley
Herschell-
Spillman
LeRoi
Mason
Pittsburg Model
Rutenber
Root &
Vandervoort
Toro
Universal
Weidely
Wisconsin
Waukesha

**Greater
cooling
efficiency
for your
tractor,
truck or
automobile**



OAKES Radiator Cooling Fans are today "backing up" the radiators on over two hundred different makes of tractors, trucks and automobiles. There are over one million Oakes Fans in use every day—rendering a silent, efficient service. They will be found as standard equipment on the majority of the country's best known tractors, trucks and automobiles. Read the lists to the right and left.

Why is an Fan Better?

A Good Fan means an Oakes Fan—for several reasons. Nearly every style of motor requires a slightly different type of fan. Every detail, every condition, is studied thoroughly by our engineers, and many tests are run in our laboratory, until we know that every feature of the fan construction is right. When we have convinced ourselves—after these tests—that it is right, then, and only then, do we proceed on the manufacturing of that particular style of fan. Oakes Fans are designed to give the utmost cooling service with the least amount of power used. When you put an Oakes Fan as standard equipment on your tractor, truck or automobile, you can rest assured that it is a correct fan from every

standpoint—and that it will do all that it is possible for a fan to do—to cool the motor efficiently—and without trouble.

Oakes was a pioneer in designing and producing cooling fans especially adapted to the operating conditions of different types of motors and radiators, and has become today the accepted authority on all matters pertaining to cooling fan efficiency.

The name Oakes on a fan is a guarantee that it was designed and produced at fan headquarters, by an organization of fan specialists. Its a guarantee that has a definite value to both manufacturer and user.

**Manufacturers
Using Oakes Fans
as Equipment**

TRUCKS

U. S. Governm't
American
Acme
Ahrens-Fox
American
La France
Armleder
Atterbury
Available
Beck-Hawkeye
Bell
Bessemer
Blair
Brockway
Commerce
Concord
Corbitt
Columbia Truck
and Trailer
Dart
Day-Elder
Denby
Diamond T
Forschler
Fulton
Four Wheel Drive
General Motors
Globe
Gramm Bernstein
Harvey
Hawkeye
Hurlburt
Indiana
Hoover Wagon
Kelly-Springfield
Knox
La France
Larrabee
Lewis-Hall
Little Giant
Menominee
Meteor
Moreland
Nelson & LeMoon
New England
One Wheel
Old Reliable
Rainier
Republic
Sandow
Sanford
Sayers & Scovill
Schacht
Seagrave
Selden
Service
Standard
Stegeman
Stewart
Sullivan
Tegetmeier &
Riepe
Tiffin
Tower
Transport
Triangle
Turnbull
United
Universal
White Hickory
Wichita Falls
Wilcox
Western
Wilson
Witt-Will
Dorris Duplex
Elgin Federal
Grant Gabriel
Garford Gary
Hahn Hebb
Lane Lange
Maccar Master
Noble Oneida
Vellie Vim
Victor Watson

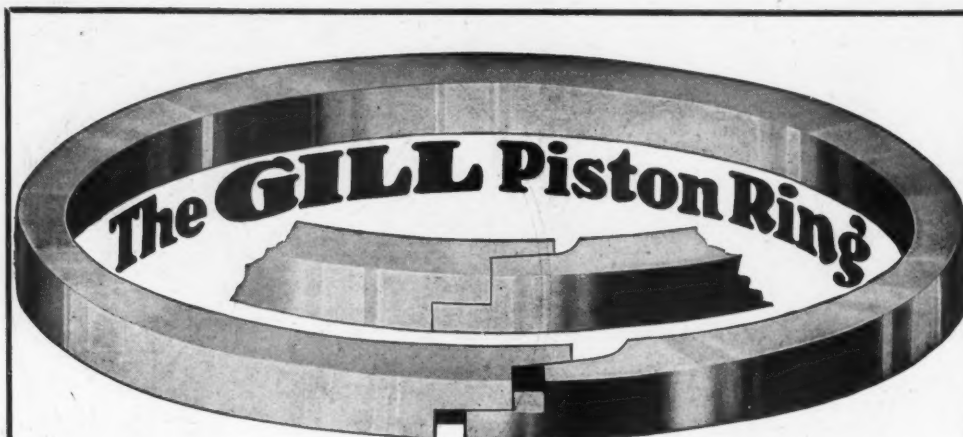
PASSENGER CARS	Willys-Overland	Case	Davis	Glide	Kline	Marmon	Shaw
	Allen	Chevrolet	Detroit	Harroun	Lexington	National	Stephens
	Anderson	Columbia	Elgin	Interstate	Liberty	Paige	Vellie
U. S. Governm't	Apperson	Chandler	Elcar	Jordan	Louisiana	Patterson	Westcott
Moline-Knight	Auburn	Crawford	Empire	Jones	Maibohm	Premier	Winton
Pan American	Baker R & L	Dorris	Grant	King	Moon	Roamer	Yellow Cab

Office and Factory
**INDIANAPOLIS
INDIANA**

THE OAKES COMPANY

Chicago Office
Theo. L. Dodd, Mgr.
80 E. Jackson Boulevard

A LITTLE PART WITH A BIG MISSION



A piston ring lacking in right design will not function properly. The ring is a small affair, but the damage and loss it inflicts is serious.

The GILL piston ring is designed to hold compression high, and stop entirely and always the expensive leakage of oil and gasoline.

Note its substantial construction, and its simple, one-piece design. In this shaping and in the joint lies its ability to expand evenly and firmly against the worn cylinder walls. Its sealing quality is perfect.

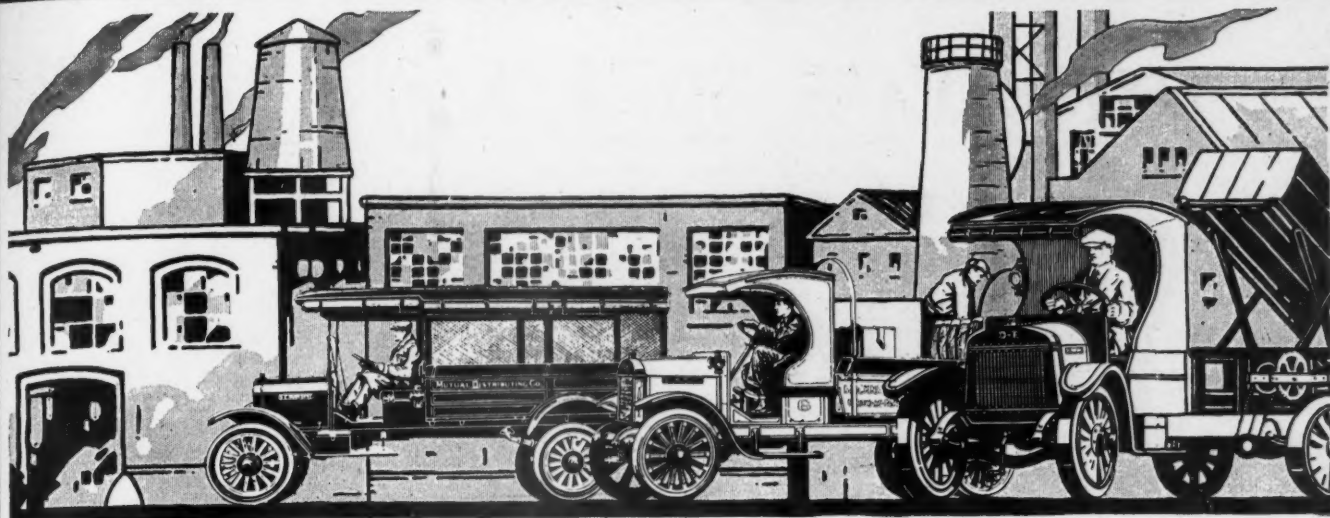
If a complete truck is judged from a service standpoint on the length of life and freedom from trouble of its power plant, then you have got to consider the piston ring question very thoroughly in specifying this part.

We will prove the sterling worth of the GILL piston ring on any test which any truck engineer may nominate.

Equip your product with GILL piston rings. Stock GILL piston rings.

Gill Manufacturing Company

351 W. 59th Street, Chicago, Illinois



NOW *is the time-*

IT is no longer a question: "Is success assured in selling motor trucks?" for the motor truck market is sure and certain. Your only problem is **choosing the truck that will assure you of the largest MEASURE of success.**

How are you to get to the bottom of it? How are you to choose with unerring accuracy **which truck offers you the greatest opportunity** to make the most of the enormous possibilities before you? By the simple expedient of **COMPARISON.**

We make these flat and positive statements for D-E Worm-Drive Trucks: They are the **best built** worm-drive trucks at their prices in America. They are, by hundreds of dollars, **lower in cost** than any other worm-drive trucks of similar capacity made. They are constructed of the very finest units, made of the very best materials, and built in the very best possible manner that money and brains can produce. Compare their specifications with others **and you will know!**

Act Now

Our greatly enlarged plant has enabled us to practically double production. We are now in position to open negotiations with a limited number of responsible business men who seek to enter the motor truck business with the avowed intention of making it a life-work and a sweeping success. To such men we offer an unusually attractive contract, backed by a guarantee of prompt delivery and close co-operation at all times. Wire us.



Prompt Delivery

To make a sale is one thing—to have the truck to **deliver** is another. **Prompt delivery** of D-E Worm-Drive Trucks is something you can count on absolutely at all times. You are **positively assured** prompt delivery of your quotas as they fall due. This feature of our service is one of the many factors in the conspicuous success of D-E Worm-Drive Trucks. Write or wire us today for complete details.

MODEL J	MODEL A	MODEL B	MODEL C	MODEL D	MODEL E
Chassis Carrying Capacity, Including Weight of Body,	Chassis Carrying Capacity, Including Weight of Body,	Chassis Carrying Capacity, Including Weight of Body,	Chassis Carrying Capacity, Including Weight of Body,	Dump Body, Chassis Carrying Capacity, Including Weight of Body,	Chassis Carrying Capacity, Including Weight of Body,
2250 Pounds	3500 Pounds	4500 Pounds	7000 Pounds	5500 Pounds	14,000 Pounds
\$1045	\$1775	\$2075	\$2750	\$2150	\$4500

DAY-ELDER MOTORS CORPORATION

Newark, New Jersey, U. S. A.

SEAMLESS GASOLINE TANKS

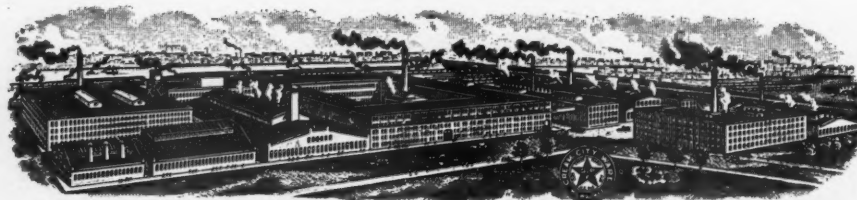


The superiority of this tank is admitted by leading truck manufacturers, whose endorsements take the shape of adoption as standard equipment.

In rugged strength it has no equal—in quality of material it excels, and so, under the heavy strains imposed upon it in truck service, we guarantee it as a tank of heavy-duty efficiency.

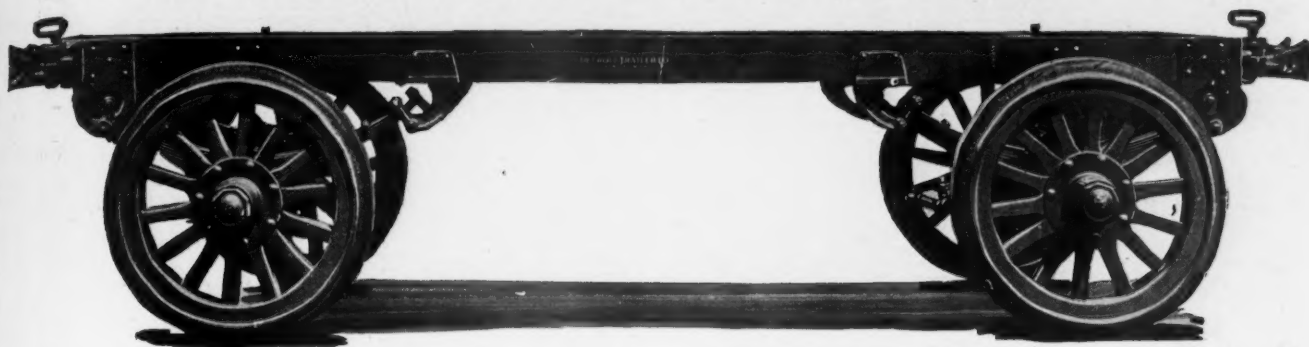
The special reinforced weld shown here puts strength where it is most needed, assuring extreme rigidity. In fact it is practically indestructible under most severe conditions of truck and tractor work.

Truck engineers are advised that this form of construction can be adapted to any design. Send blueprints and let us give you the details and figures.



GEUDER, PAESCHKE & FREY CO., St. Paul Ave. N. W., Milwaukee, Wis.
Detroit Office: 1312 Dime Bank Building

To Dealers Who Sell Service



Yes, There IS a BIG Difference in Trailers

And that difference stands between money-making operating cost and excessively high non-productive expense.

The Detroit Trailer (5 ton capacity) will carry its load at about 10% over the cost of the truck operation cost. Sometimes ordinary trailer cost goes as high as 60%.

Now, here are features that make the Detroit Trailer the **one** scientifically designed vehicle of its kind—features that make this remarkably low cost of operation possible.

Note the lower illustration: it shows the radius rods and method of converting the drawbar tongue. This, with double-acting springs, absorbs starting and stopping shocks. The

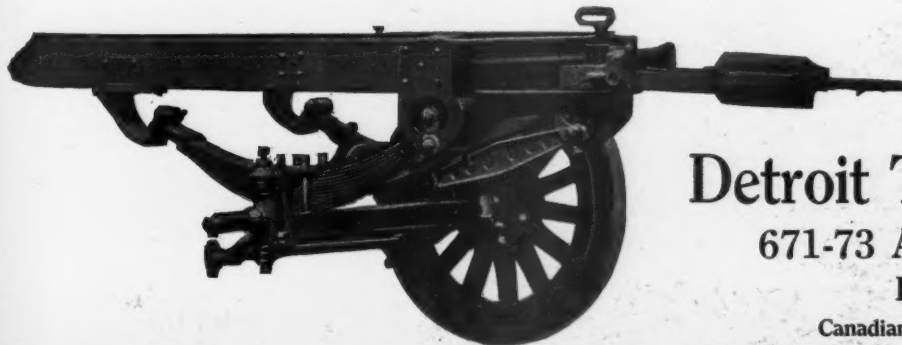
saving of power-plant and fuel is very obvious. The springs are suspended on a tension shackle at each end. Result—no spring duty save that of carrying the load. Breakage minimized.

Steering gear is direct on axle. It is of the ball and socket type, designed to take care of longitudinal and rocking motion. No sidesway, so cutting down tire and gasoline cost. ***More reasons on request.***

Dealers: The Detroit Trailer costs a little more—it is worth much more. It is the **only** trailer for **you** to consider, from a maximum service standpoint. It is the only one for any **real** service dealer to handle.

Write and just say "show me more."

1½, 3, 5 and 7 Ton Capacities. Also Pole Trailers

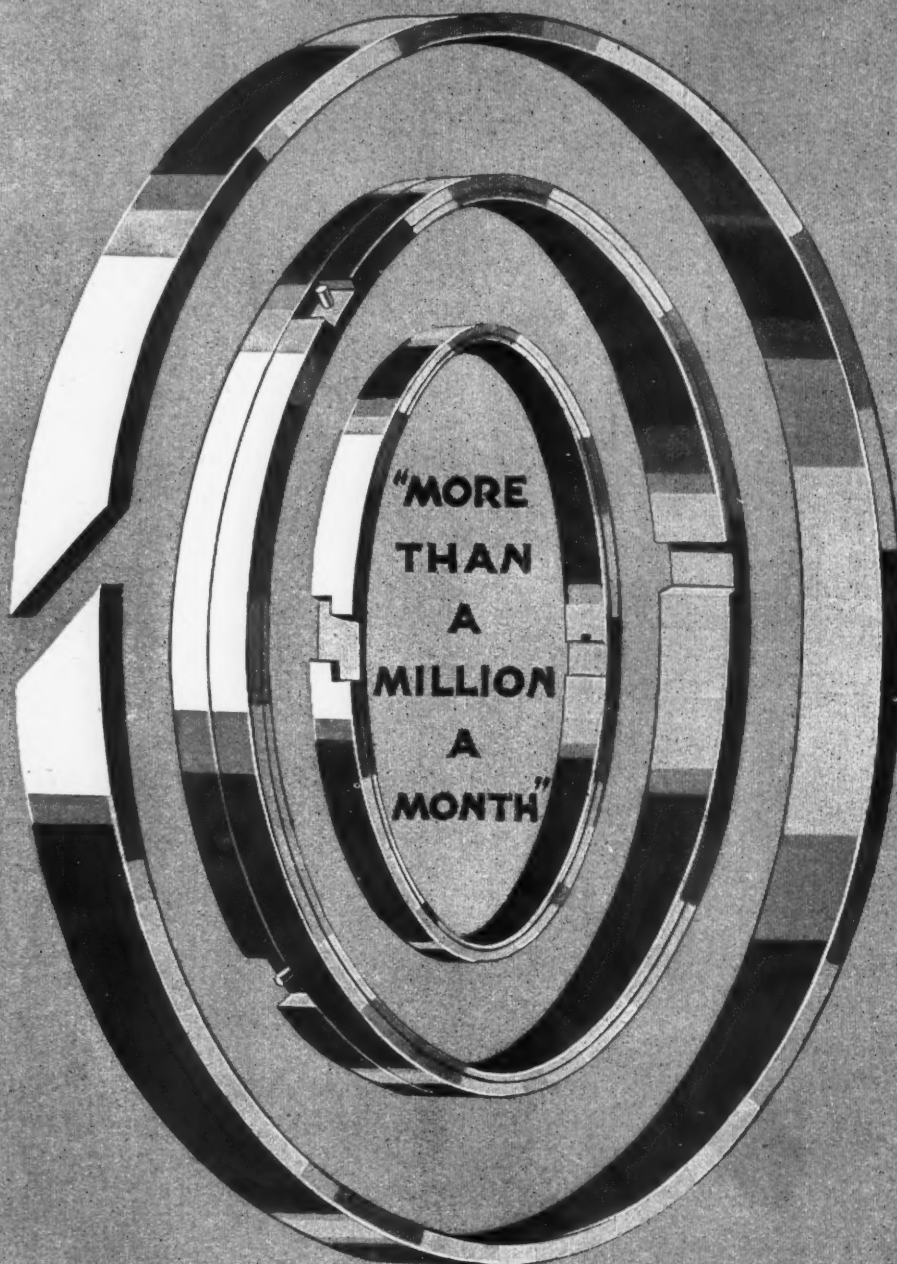


Detroit Trailer Co., Inc.

671-73 Atwater Street, East
Detroit, Mich.

Canadian Branch: Walkerville, Ont.

QUALITY *STA-TITE* *DUPLEX* PISTON RINGS



SEND FOR "TWELVE REASONS" BOOKLET

The Piston
THE RING COMPANY
SPECIALISTS IN PISTON RINGS

102 SANFORD ST.

MUSKEGON, MICH.

Guide

LAMPS for TRUCKS

THE real worth of a part or accessory may always be gauged by the character and responsibility of the car and truck builders who adopt it as standard equipment.

We modestly refer to the following list of Guide Lamp users—both truck and passenger:

Allen Motor Co.,	Fostoria, O.	Reo Motor Car Co.,	Lansing, Mich.
Anderson Motor Co.,	Rock Hill, S.C.	Root & Van Dervoort Eng. Co.,	East Moline, Ill.
Baker R. & L. Co.,	Cleveland, O.	Stephens Motor, Branch of Moline	Plow Co., Freeport, Ill.
Bunyan Signal Light Co.,	Cleveland, O.	F. B. Stearns Co.,	Cleveland, O.
Chandler Motor Car Co.,	Cleveland, O.	The Templar Motor Corp.,	Cleveland, O.
Cortland Cart & Carriage Co.,	Cleveland, O.	The Winton Co.,	Cleveland, O.
Crow-Elkhart Motor Co.,	Sidney, N. Y.	Oakland Motor Car Co.,	Pontiac, Mich.
Economy Motor Co.,	Tiffin, O.	Republic Motor Truck Co.,	Alma, Mich.
Holmes Automobile Co.,	Canton, O.	Standard Steel Car Co.,	Butler, Pa.
Jordan Motor Car Co.,	Cleveland, O.	The White Motor Car Co.,	Cleveland, O.
The Milburn Wagon Co.,	Toledo, O.	Moline Universal Tractor Co.,	Rock Island, Ill.
Peerless Motor Car Co.,	Cleveland, O.		

Guide Truck Lamps are products of engineering and lens-making skill. They conform rigidly to the highest standards of strength, accessibility of parts, lighting depth and radius, and physical design.

Automobile engineers frequently give us valuable suggestions covering special designs for their exclusive outputs. We cannot quote on these already designed, but we co-operate fully in building lamps to the ideas of truck engineers.

Let us go into the matter together. Our facilities for quantity production are ample—our prices right.



MODEL NO 701

The
Guide Motor Lamp Mfg. Co.
Cleveland,
Ohio, U.S.A.



Facts About an Industry of Amazing Growth—

Facts that deal with every phase of that industry, including design, construction, sale, use, repairs, maintenance, development, future, opportunities—all these and much more will be found in the forthcoming issues of the

CHILTON TRACTOR JOURNAL

The tremendous growth of the tractor industry has been one of the outstanding events of recent years. The attention of keen and far-seeing men has been focused upon it because of the remarkable opportunities it presented for profitable business-building. From all over the land there has been an insistent demand for *facts* about the industry, particularly from the standpoint of the dealer.

That demand has been met by the Chilton Tractor Journal.

The first issue—that of July, 1918—was a revelation. It marked an epoch in trade-paper publishing. It astounded the trade by its completeness and appearance; by the quantity and quality of its contents; by the way in which it met the needs of those in the business or about to enter it—and that issue was just an indication of what readers might expect *every* issue.

If you are engaged in the manufacture or sale of tractors, or are contemplating engaging in either, or want to know the facts about the industry, or desire to learn about rich opportunities for money-making—

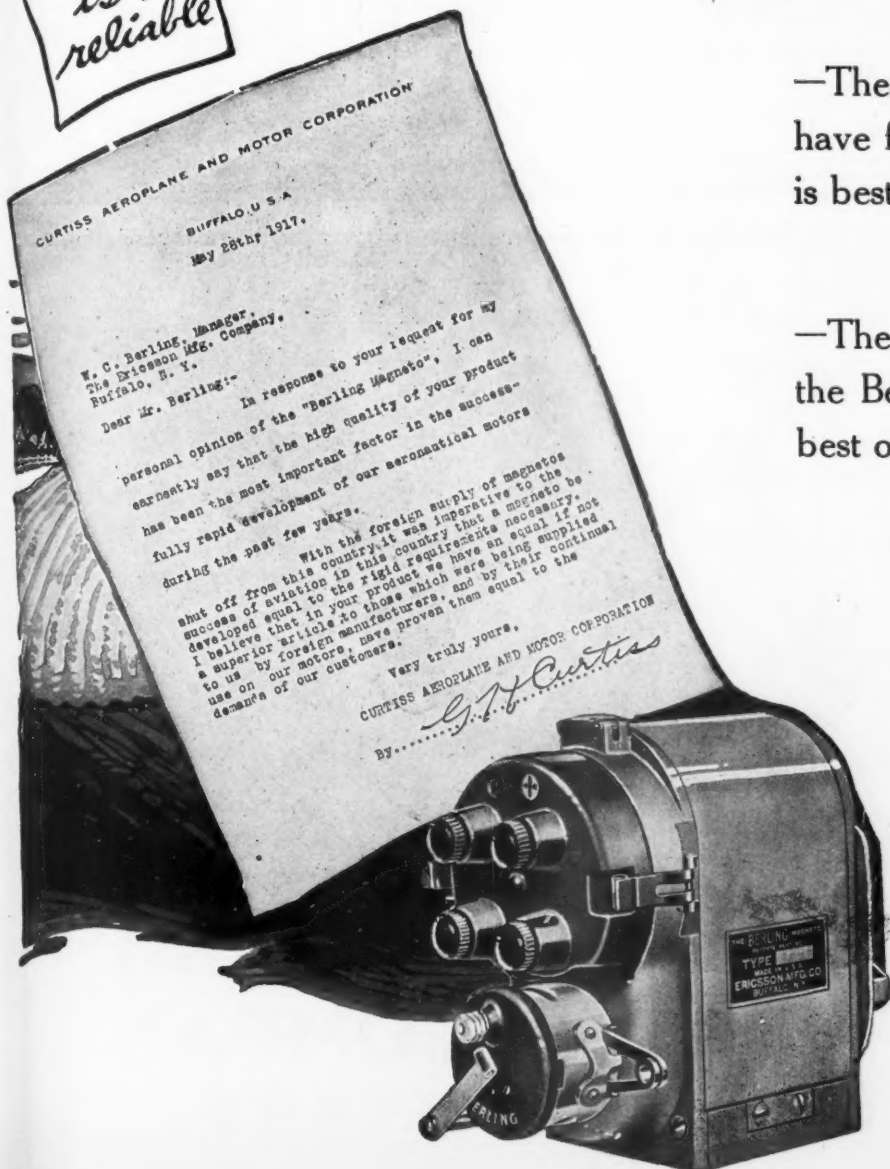
You Need the Chilton Tractor Journal

*Get this wealth of information once each month by sending
your subscription today*

\$1.00 Per Year

Chilton Tractor Journal, Market and 49th Sts., Philadelphia

American air-men will demand the Berling WORTH MORE Magneto DOES MORE on their motor-trucks



—These future leaders of the nation have found that the Berling Magneto is best in the sky—

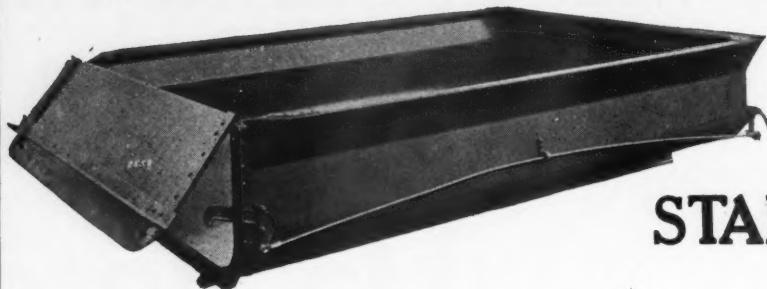
—They know that on leading trucks the Berling Magneto has been found best on the road—

—Berling reliability is the same on truck magnetos as on airplane magnetos—

—Please investigate.

Manufactured by
Ericsson Mfg. Company
Buffalo, N. Y.

MORE INSISTENT CALLS FOR FAMOUS MODEL "A" STANDARD BODIES



A large stock of this popular body is now on hand, and we can make prompt shipment on orders, large or small.

Model "A" is shown here. Note that it is constructed of No. 8 U. S. Gauge steel plates. All plates which are extra large are air-hammer riveted, insuring a perfect fit.

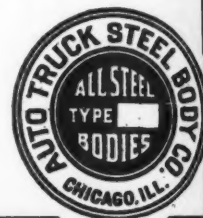
We also build special types to suit all requirements. Let us quote you before placing your orders.

Auto Truck Steel Body Co.

H. R. Dailey, President

3028-46 Carroll Ave.

Chicago, Ill.



COUNTERBALANCED PARK CRANKSHAFTS

Patented July 10, 1917



We have shipped
63,771 Counterbalanced Crank-
shafts up to August 19, 1918

**THE PARK DROP
FORGE COMPANY
CLEVELAND**

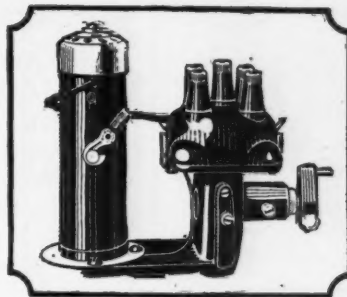
ATWATER KENT

SCIENTIFIC IGNITION

FOR THE TRUCK

EASY starting in all weathers, maximum power at all speeds, simple in operation, saving in gas—these are a few of the reasons why you should install Atwater Kent Ignition on your truck.

No complicated parts—no magnets—just a simple, high-grade device that does its work faithfully, winter or summer, rain or shine, as long as the truck holds together.



Type CC Magneto Replacement System

ATWATER KENT MANUFACTURING WORKS, PHILADELPHIA
WRITE FOR DEALER PROPOSITION TO 4945 STENTON AVENUE

OAKITE

CLEANS



**Axles and other
large motor parts**

MORE SPEED - LESS LABOR

BETTER WORK - LESS COST

We can solve your Cleaning Problem.

Oakley Chemical Co.
38 Thames Street New York

BOWSER ESTABLISHED 1885 Systems for Lubricating Oil



Figure 245

CURB PUMP

The Bowser curb pump for lubricating oils is coming into universal usage. Motorists look for it and the dealer so equipped gets the trade.

The pump shown on the left is our best seller. It is handsome, massive and of great visibility. Day and night it is practically doing its own selling. It pumps a half-gallon, quart or pint as desired. Equipped with lock.

The Portable Wheel Tank

Figure 154 illustrated is a good ally for the curb pump. It measures quart, pint or half pint. Wheel it where the cars are, inside or out. A world-beater for service. Write for the Bowser catalog illustrating these lines in full. We have what you want. Ask for Booklet ten.

THE S. F. BOWSER CO., Inc.
Ft. Wayne, Indiana



Figure 154

Columbia Truck and Trailer

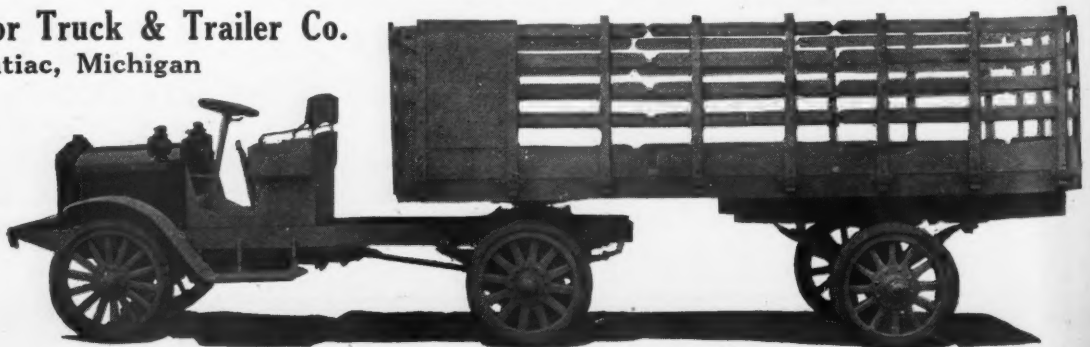
The Most Economical Method of Haulage

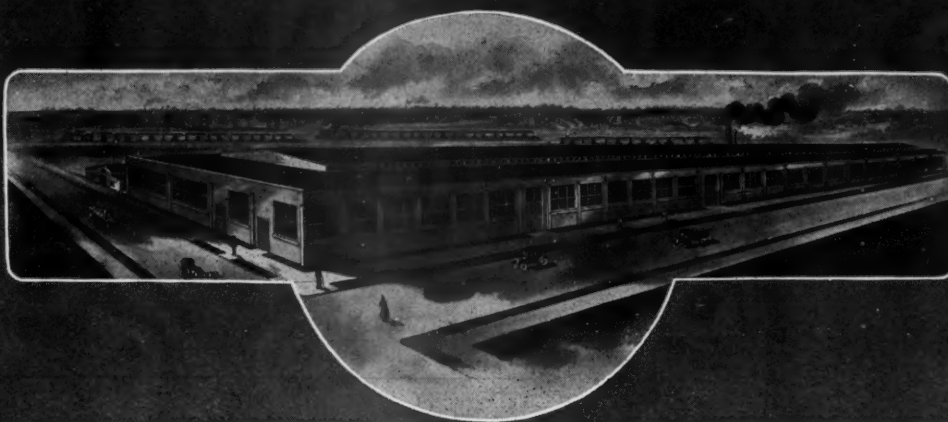
For economy of man-power, of time and of costs there is nothing that can beat the combination of truck and trailer. And transportation conditions today are such that this economy is most urgently needed in all lines of business. Therefore, there is always created a tremendous field for the sale of the

Columbia 2 Ton Truck and 6 Ton Trailer

You can show any man who does heavy hauling how the Columbia combination will reduce his costs, expedite deliveries and save man-power, so important today. And you can show and prove this because it is being done every day. Two men and the Columbia Truck and Trailer can do the work of eight men and four trucks. The investment is less, operating expense is reduced and time saved. The proposition appeals instantly to practical men. You can make big profits by showing them how to save on haulage expense. The Columbia plan is a live one—get the particulars.

Columbia Motor Truck & Trailer Co.
Pontiac, Michigan





Hoods Fenders Tanks Stampings
Sod Pans—For Trucks and Tractors
We Furnish Heavy Gauge, Acetylene Welded Tanks for Trucks
Ford Crown Fenders

Send Your Blue Prints for Quotations

Motors Metal Manufacturing Company
Detroit, Michigan

CLEVELAND WORM GEARING

THREE SOUND POINTS:

Correct Design--insured by engineers with over 25 years' actual experience.

Proper Selection of Materials--based on practical results of 25 years' production.

Special Machinery for Their Cutting--Designed and perfected in our own factory by engineering and production ability.



THE RESULTS:

Reputation--Ask the prominent users of worm gearing.

Durability--No worm gearing has ever been returned for faulty design and material.

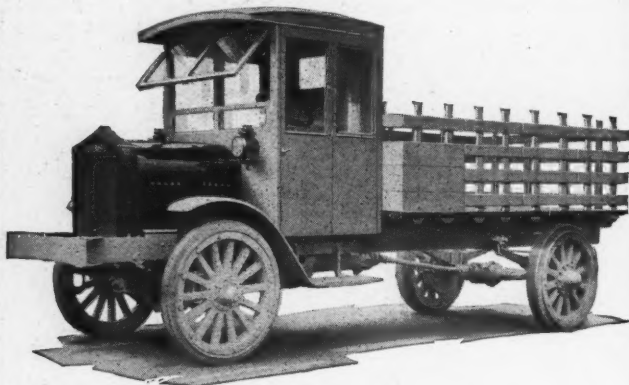
Patronage--Larger than that of any competitor.

THE CLEVELAND WORM GEAR COMPANY
CLEVELAND, OHIO

C. F. QUICKE & CO.
 315 Euston Road, London, Eng.

REPRESENTATIVES:

THE INDUSTRIAL EQUIPMENT CO.
 223 Main Street, San Francisco, Cal.



Perfect Protection in All Kinds of Weather

With the growing difficulty of obtaining capable drivers, more attention is being given to proper cabs, suitable to use in every season. Trucks must run every day, and with the constant increasing of the radius of motor delivery—the growth of Suburban and Interurban routes—an enclosed cab is essential.

EVERY DAY MOTOR TRUCK CAB

The "Every Day" Cab is the product of a recognized leader in motor truck body construction. It was designed after consultation with the best truck engineers in the industry, and has their unqualified approval. It meets every requirement of truck service, and will stand up, year after year, as a cab of lesser quality and design cannot.

Built for Long, Hard Service

Straight lines throughout, allowing proper reinforcement at every point to prevent racking, heavy glass in doors, windows and windshield, giving greater protection and convenience than is possible with curtains—doors removable when desired, or can be locked open, flat against cab sides—complies with all requirements of Accident Insurance Companies.

"Every Day" Cabs will prove a valuable asset in your sales work; will prove, in many cases, the last point that will close the sale. And they will help greatly in making owners and drivers boosters for your truck.

Dealers: Specify "Every Day" Cabs in your next orders to the factory. They will win instant approval from your customers.

Manufacturers: Write for specifications.

The Highland Body Mfg. Co.

1017 Elmwood Place, Cincinnati, Ohio

To Truck and Parts Makers

Who have nothing to sell.

Who are full up on war orders.

Who cannot get enough materials.

Who have labor shortage.

You Still Have Something to Sell and Keep Sold—Your Name and Good Will

Keep your name and product before the manufacturers and dealers, so that they will keep on wanting your product until the day comes when you can supply them

Build Now for the Post-War Period

Advertising now in the
COMMERCIAL CAR JOURNAL
is Business Insurance

Largest Paid Circulation (CCJ)
Largest Advertising Patronage

Hartford

Universal Joints



Cone Clutches

The Factory—more than doubled in size and capacity. The skilled workmen in correspondingly increased numbers. The engineering staff larger than ever. *Result: Production traveling abreast of heavy orders. Deliveries prompt as always.*

The Products—Same carefully selected materials. Same Hartford correct design. Same careful turning out of finished products from raw steel to tested perfection.

"Hartford Cone Clutches and Universal Joints for big and little trucks." Write our engineering department. We co-operate.

Hartford Auto Parts Company
Hartford, Conn.

No Truck can be as good as an **ARMLEDER**

And without these superior NEW constructional features a truck could not give BEST results.

Each of the following Armleder Features is a positive improvement over all other motor truck construction:

SPRINGS Armleder Patented. Guaranteed not to break down or creep. Mounted without shackles or shackle bolts—eliminating numerous wearing parts.

WHEELS that are too strong to break down.

RADIUS RODS constructed to hold the rear axle in place and keep the front and rear wheels in perfect alignment; thereby removing the greatest cause of Universal Joint trouble.

FRAME that will not break or sheer out of square.

RADIATOR mounted on shock absorbing springs. Never leaks.

Those dealers who can qualify up to our standard are invited to write for territory

The O. Armleder Co.

Cincinnati, U. S. A.



EMPRESS OIL AND GREASE CUPS



BOWEN PRODUCTS CORP.

SUCCESSORS TO BOWEN MANUFACTURING COMPANY

AUBURN DIVISION

AUBURN, NEW YORK

SEND FOR CATALOGUE "A"

A DEALER PROPOSITION THAT WON'T WAIT

This is an immediate opportunity for substantial dealers to secure the agency for a truck that meets 95% of all haulage needs



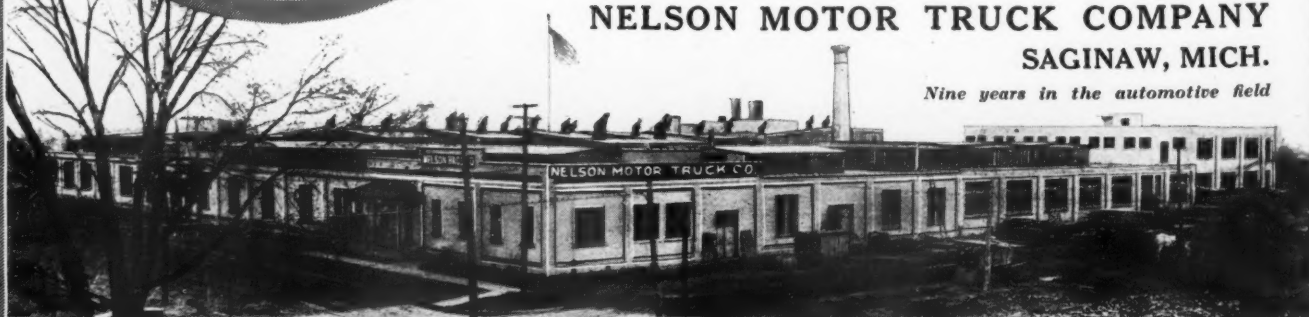
JUMBO

2 1/2 TON INTERNAL-GEAR MOTOR TRUCKS

Built of standard units: Buda motor, Clark axle, Fuller transmission, Timken and Hyatt bearings, Detroit springs. Prompt deliveries. Twelve months' guarantee. Priced at \$2250, but holding the real profit a dealer needs to warrant an aggressive selling effort. Real selling co-operation extended right kind of dealers. Don't wait. Write or wire now.

NELSON MOTOR TRUCK COMPANY
SAGINAW, MICH.

Nine years in the automotive field





THE simplest, most efficient hoisting device on the market. A high-class product in every respect, at the right price. We will assist you to make layout for your chassis. If you are not now one of our customers try us and compare our service with what you are now getting.

THE HYDRAULIC HOIST MFG. COMPANY

292 Walnut Street

Saint Paul, Minnesota



Bunting Finished Bronze Bushings and Bearings

(Patented)

Are Used in Leading Commercial Cars

Their Quality, Uniformity and Friction Resisting Qualities Are Understood and Appreciated by All Discriminating Builders

The Bunting Brass and Bronze Company

744 Spencer Street, Toledo, Ohio

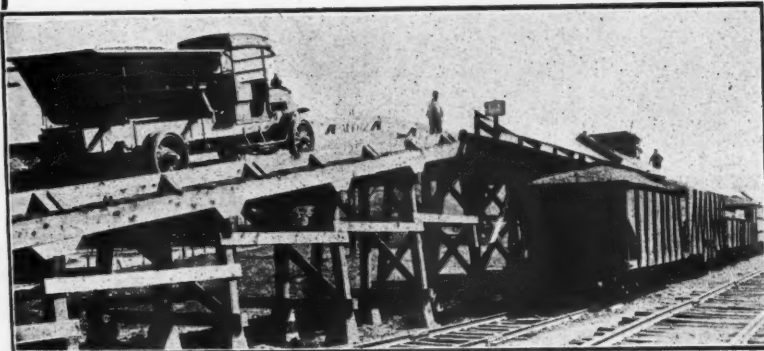
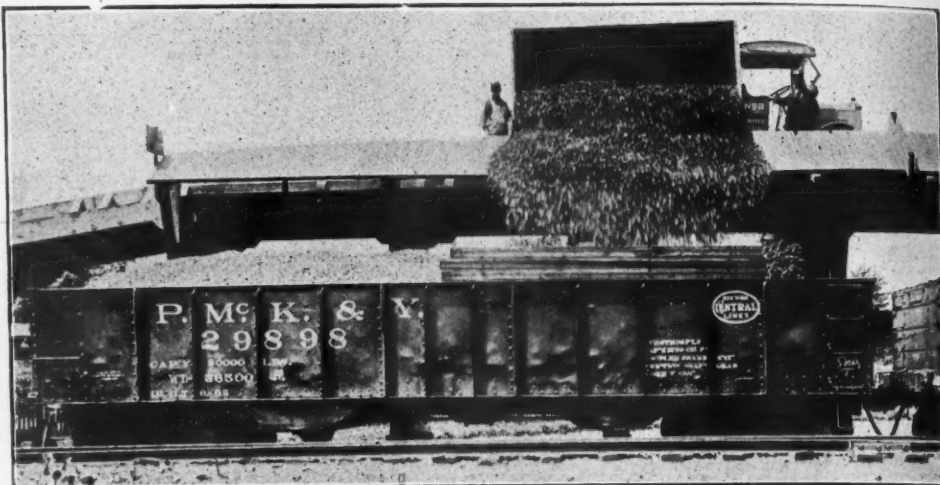
Side Dump Bodies for Motor Trucks and Trailers

No Power Required to Operate

Winsor Gravity Dump Bodies put profit in wagon coal mines.

Get that coal and win the war.

The only dump body built that can load a string of cars from a parallel elevated platform.



DUMPS its load by gravity on either side of the platform. Hopper is quickly removed, permitting truck to be used for other purposes.

Patented May 2, 1916 and Nov. 6, 1917

Winsor Gravity Dump Body Co.
465 Stanley Avenue Detroit, Mich.

BATAVIA Control Sets

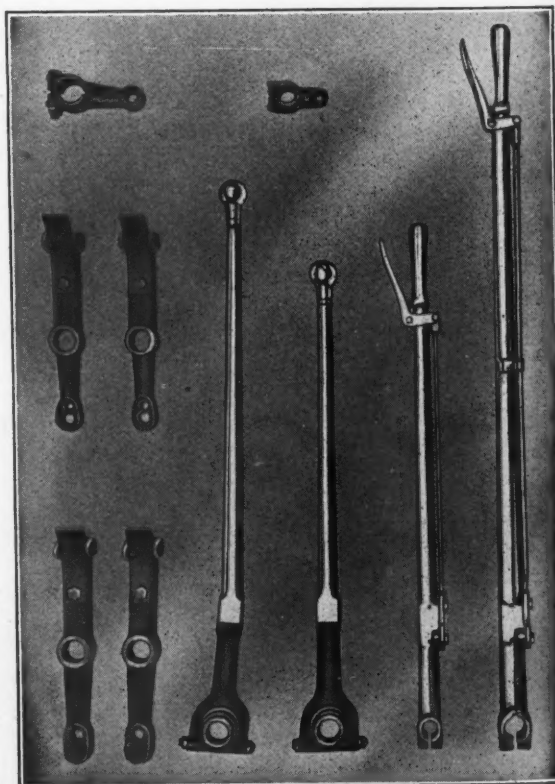


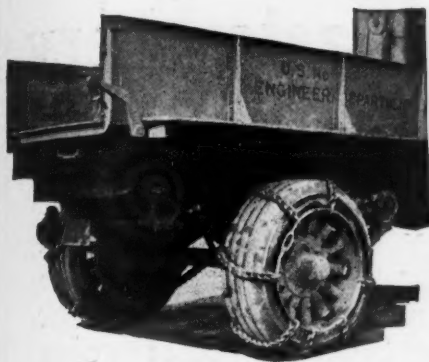
Drop-Forged
Levers. Best
workmanship.
Assembled in
many types of
Base Castings.
Suitable for 1 to
5 Ton Trucks.

Write for blue-
print New 4-
Speed Control.

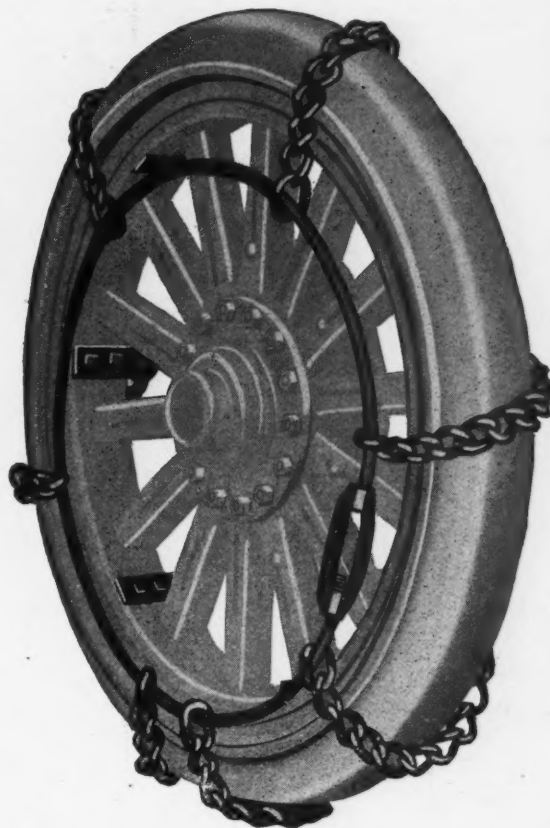
Baker Gun and Forging Co.
Batavia N. Y., U.S.A.

Detroit Office: F. C. LONNEY, Washington Arcade





*on
or off
in a
minute*



Outside View

"STANDLEY CHAINS"

FOR SOLID TIRES

TRUCK DEALERS: It will pay
you to write for our proposition

STANDLEY SKID CHAIN CO.

BOONE, IOWA, U. S. A.

KEEP THE ENGINE COOL!

No Engine Can be More Efficient Than Its Cooling System

Each Long Cooling System is especially designed for the motor with which it is to be used. Each step in creating the design is taken in co-operation between the Engineering department of our factory with those of the manufacturer. The result is the highest possible efficiency at lowest cost.

Long Cooling Systems are specified by the leading engineers of the automotive industries.

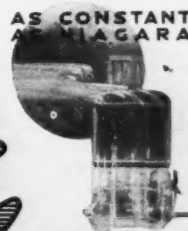
LONG MANUFACTURING CO.

Detroit, Mich.

Pioneer Makers of Cooling Systems for Gasoline Engines

Long Spiral Tubing is the most efficient, durable and dependable for Motor Trucks and Tractors — annual capacity thirty million feet.

LONG



COOLING SYSTEMS

The Recognized Standard for Tractors, Trucks and Motor Cars.

Williams' Superior Drop-Forgings Heavy and Light Made to Order



Two up-to-date, fully equipped plants at Brooklyn and Buffalo, N. Y.

J. H. Williams & Co.

"The Drop-Forging People"

80 Richards St. Brooklyn, N. Y.

Western Office and Warehouse:
80 So. Clinton St., Chicago, Ill.

Fight Waste Every Foot of the Way!

The more you pay for fuel, oil and supplies, the more you are going to watch the mileage you get for your money, and the more you are going to value a Hub Odometer.

By way of compensating for the higher cost of mileage, you are going to get more truck-miles per gallon of gasoline, per pint of oil, per tire-life, per battery-renewal, etc.

You're going to keep closer tab on your drivers—know the distance per day that each man covers. You're going to fight waste every foot of the way—from the first haul you make with a

Veeder
HUB ODOMETER



The name *Veeder* on a Hub Odometer is the outer mark of a powerful inner mechanism. Make it a point to see this mechanism; it's the main thing you buy; the first thing to look at.

The Veeder always ADDS mileage, whether truck runs forward or backward. Price, \$20. Ford model, \$15. Ask for leaflet, "More About Odometers."

The Veeder Mfg. Co.

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New York Distributor
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1777 Broadway

Detroit Distributors
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617-619 Fulton St.

Pacific Coast Distributors
to Jobbers and Dealers
F. Somers Peterson Co.
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Pacific Coast Distributor
to Automobile and Truck Mfrs.
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444 Market St., San Francisco, Cal.

Middle-West Service Station: C. G. Wirick Co., Chicago



"NORMA" PRECISION BALL BEARINGS (PATENTED)

Service—the supreme test of men and of machines—the thing expected and exacted from all—the measure of value of an individual and of a commodity—the times have given the word a new and higher significance. And service today means more than adequacy to ordinary demands—it means an available reserve equal to any emergency.

Guided by experience—warned by previous failures—builders of dependable ignition apparatus and lighting generators standardize on "NORMA" Precision Bearings—knowing that "NORMA" serviceability helps any machine measure up to the service conditions which the times impose.

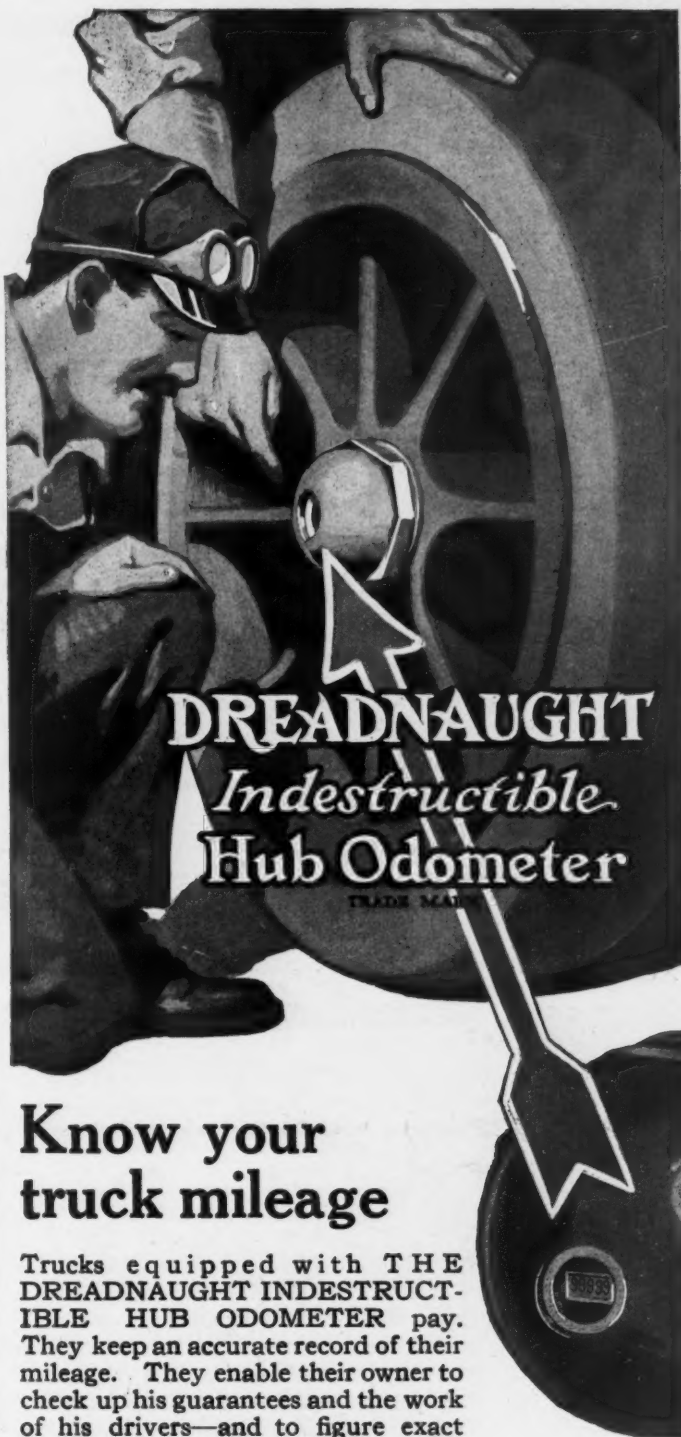
**Be Sure—See That Your
Electrical Apparatus
Is "NORMA" Equipped**

THE NORMA COMPANY OF AMERICA

1790 BROADWAY

NEW YORK

Ball, Roller, Thrust and Combination Bearings



Know your truck mileage

Trucks equipped with THE DREADNAUGHT INDESTRUCTIBLE HUB ODOMETER pay. They keep an accurate record of their mileage. They enable their owner to check up his guarantees and the work of his drivers—and to figure exact cost of operation per mile.

That is why America's foremost truck makers endorse the Dreadnaught. It proves the efficiency of their trucks.

Guaranteed collision-proof and grease-proof, the Dreadnaught will appeal to truck owners in your territory. Sell them.

AMERICAN TAXIMETER COMPANY

16 West 61st Street

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Branch Offices and Service Stations:

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NEW ORLEANS...947 Howard Ave.
MILWAUKEE....197 Ogden Ave.
HOUSTON, TEX.



Radiator Insurance


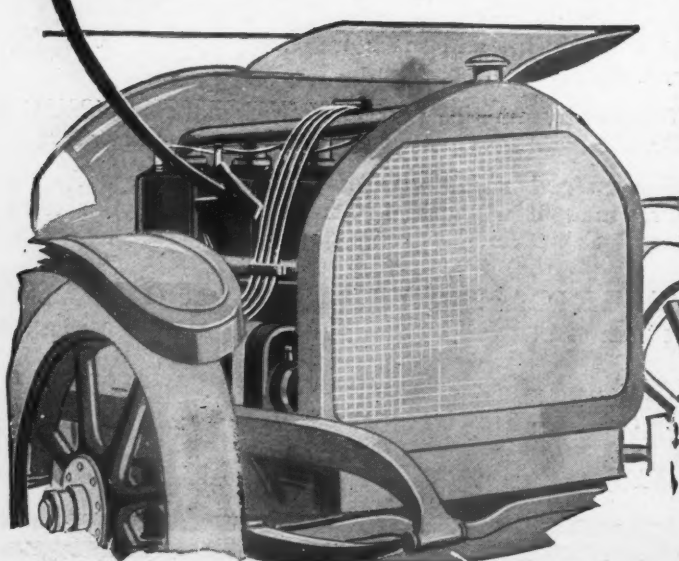
**SEAMLESS
HELICAL TUBE
COOLING SECTIONS**

are guaranteed for the life of the truck on which they are installed. They are perpetual insurance against radiator trouble. They satisfy all of the exacting requirements of the most critical engineers. They are the last word in modern radiator construction. Ask us for information. Our Engineering Department is at your service.

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Sole Manufacturers

Rome-Turney Radiator Co.
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Packard
CABLE

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CABLE

Made in various sizes for all requirements of ignition, lighting and starting.

There's an appropriate Packard Cable for every electrically-fired motor vehicle. Cable that gives the maximum service because it is water, oil, heat and vibration proof.

The Packard brand is the guarantee to you of complete satisfaction.

Write for samples

The Packard Electric Company

WARREN, OHIO

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THE SPECIFICATIONS OF

LANE MOTOR TRUCKS

Tell a Big, Successful Sales Story to Dealers

Lane Trucks are supreme in their capacity class. They are rightly priced and built as a truck should be, to stand up under overload and rough handling. And, Lane Trucks are complete trucks to the most minor details.

**Equipped with Electric Starting and Lighting Systems
Storm-Protecting Cabs With Windshields and Curtains**

Lane Truck specifications prove their quality class. Continental motors. Timken rear axles. Ross steering gear. Special type radiators. Positive water circulation. Roller bearing, independent sliding gear transmission; four speeds—three forward, one reverse. Drop-forged I-beam front axles. Extra heavy reinforced channel or pressed steel frames. Stromberg hot air jacketed intake carburetors. Two-unit system generators and motors. Willard storage batteries. Raybestos lined, flexible, positive acting three-plate disk clutch, etc.

Let us send you complete detailed specifications and sales plans for your territory

The Lane Motor Truck Company (Dept. C)
KALAMAZOO, MICHIGAN, U.S.A.

Three Models

3000 Pounds
5000 Pounds
7000 Pounds

Capacity
Worm-Driven
Trucks

QUALITY



SERVICE

FRAMES

for

Trucks — Pleasure Cars — Tractors — Trailers
also **BRAKE DRUMS** and
Large Steel Stampings of every kind

The Parish & Bingham Co.

Cleveland, Ohio

DU PONT AMERICAN INDUSTRIES



REG. U. S. PAT. OFF.

TRUCK SPECIAL**Consider *Man Power*
When Buying Trucks**

You need horse power to carry the load and Truck Special Fabrikoid to carry the driver.

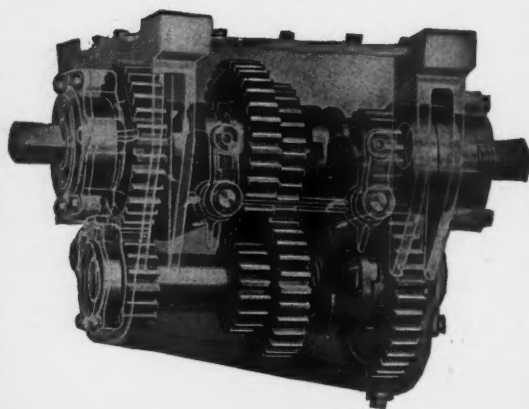
Cab comfort means good cheer and good work. It demands an upholstery material as soft and satisfying as fine leather, but waterproof, grease-proof, stain-proof and washable. All these qualities, combined with rugged strength and splendid durability, are built into Truck Special Fabrikoid. Made for severe service, it stands every test of work and weather. Samples on request.

Du Pont Fabrikoid Co.
Wilmington Delaware
New Toronto, Canada

DU PONT

**COTTA
TRANSMISSIONS**

All
Gears
Always
in
Mesh



An
Assurance
of
Dependable
Service

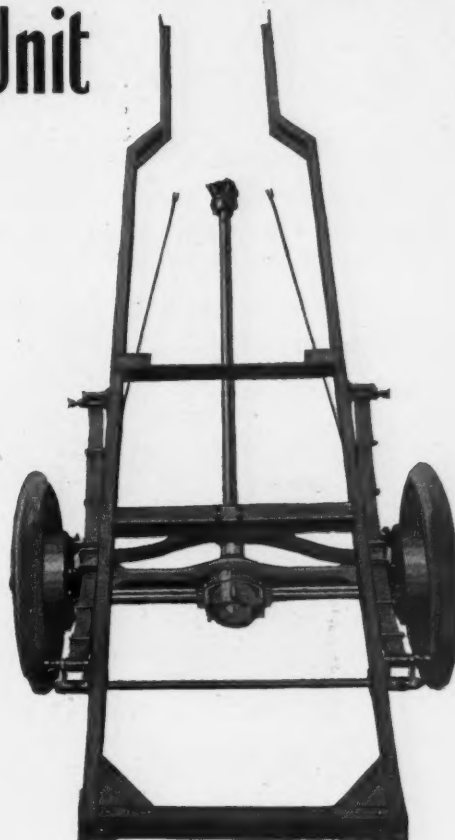
The Cotta Transmission Co. Rockford, Ill.

The Burlington Better Truck Unit

THE Burlington has more real merit than any attachment on the market. Every working part is roller bearing—it will pay you to investigate before closing agency. Some splendid territory still open.

Write at once for particulars

The Burlington Motor Truck Co.
Burlington :: Wisconsin



A Giant for Strength A Dwarf for Weight

This winch has a guaranteed capacity of 5,000 pounds pull on a single line. Its limit is far in excess. Notwithstanding this power, which would naturally presuppose great weight and bulk, we have, through right design and best materials, produced a remarkably light model.

We build winches of ultra-refined design with brass bushings throughout, and best material and workmanship to give it quality out of ordinary. Not the cheapest, but the most serviceable.

Illustration shows

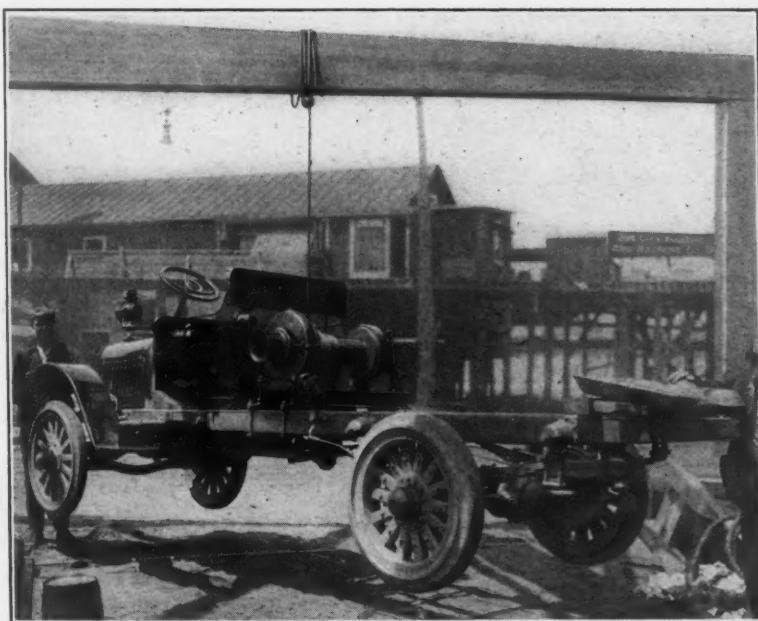
BAY CITY WINCH TYPE D

Note that these winches are self-contained. No holes are necessary in the truck frame for installation.

Type "D" shown here, is one of seven different types we build. Our line of winches and cranes covers every possible application in service.

Truck Dealers: Write for prices and liberal discounts. These winches are likely items of equipment. You can sell them.

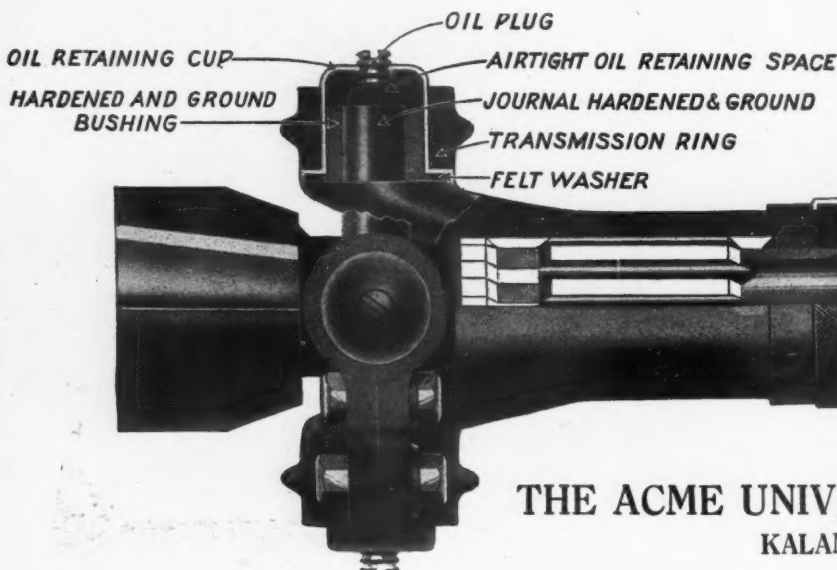
Bay City Foundry & Machine Company
Bay City, Michigan



Lifting Truck and Load—5800 Pounds

ACME UNIVERSAL OILTITE JOINTS

Offer a design that combines simplicity with unusual strength. The working parts are reduced to a minimum, and the design comprehends immunity to damage and ability to work perfectly under all conditions of stress and strain.



In every particular, the Acme Universal Oiltite Joint is a part of quality and performance on every car, truck and tractor so equipped.

The details of construction and prices will appeal to manufacturers of high-grade products. Write for them.

Oiltite—an Exclusive Feature

This joint requires lubrication but once a year. It is only necessary to fill the oil cup, and oiling may then be forgotten for that period. As the name indicates, this joint is Oil-Tight.

THE ACME UNIVERSAL JOINT MFG. CO.
KALAMAZOO, MICH.

THESE ARE DUMP TRUCKS — WHERE ARE THE HOISTS?



BOTH TRUCKS ARE EQUIPPED WITH **HORIZONTAL HYDRAULIC** HOISTS
TILTING THE BODIES TO A DUMPING ANGLE OF 45°

(Licensed under the Wood Patents)

SUPERIOR FEATURES { UNIFORM OIL PRESSURE
ELIMINATION OF WIRE ROPES
NO PART OF HOIST BELOW TRUCK FRAME
NO CONCENTRATED LOADS ON TRUCK FRAME

HORIZONTAL HYDRAULIC HOIST CO.

INCORPORATED

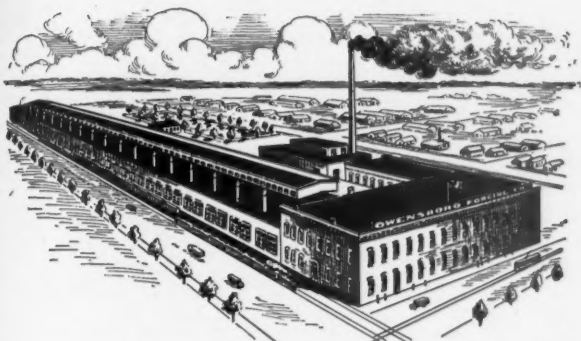
Successor to YOUNG PATENT HOIST CO.

35 TWENTY-FIFTH ST.

MILWAUKEE, WIS.

OWENSBORO FORGINGS

Represent the Highest Quality in the Production of
Light Drop Forgings for
Trucks—Tractors



Plant of The Owensboro Forging Co., Incorporated, Owensboro, Ky.

We specialize in Top Irons, Commercial Body Irons, Chassis Irons, Tail and Headlight Brackets, End Gate Eye Bolts, Iron Braces, Spring Clips for Trucks, and in fact all types of Light Forgings.

We have a large plant, excellent shipping facilities, and use only high-grade materials.

Send us your blue-prints and let us quote you

The Owensboro Forging Company, Inc.
Owensboro, Kentucky



The Mighty Arm of a Giant

No lesser force could crank a big truck or tractor motor fast enough to deliver a starting spark as intense as that delivered by a K-W Magneto equipped with a K-W Impulse Starter.

No matter how slowly you turn your motor over—even if you use a crowbar—the shaft or rotor of the Magneto (held back until the firing point of the engine is reached) is driven forward at a high rate of speed by this powerful impulse starter. This produces a hot, intense starting spark, even when the motor is stone cold. It gives **easy** starting and entirely eliminates troublesome self-starters, coils and batteries. With the K-W Impulse Starter, the motor **can't** kick back while cranking and injure you, even if the spark lever is fully advanced.

The K-W Impulse Starter, found **only** on K-W Magnetos, was the **first** impulse starter. It has stood the test of time. It is a fit team-mate for K-W Magnetos, whose efficiency and reliability has led 40 manufacturers to adopt them as standard equipment on 83 models of tractors.



HIGH-TENSION MAGNETOS

assure an early start without fussing. Their reliability keeps the tractor a-going. Their efficiency cuts fuel costs to the bone.

Dealers and manufacturers owe it to themselves and their trade to see that the tractors and trucks they sell are equipped with trouble-proof, efficient ignition—a K-W High-Tension Magneto.

Write for a list of K-W equipped tractors and K-W "Licensed" Service Stations.

THE K-W IGNITION CO.
2831 CHESTER AVE. CLEVELAND, OHIO, U.S.A.



MAGNETOS
fire any kind of
FUEL

G.B.&S
motors

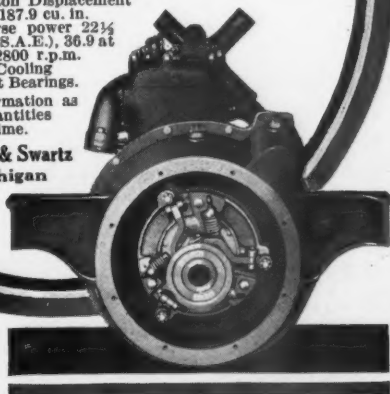
This motor is being successfully used in truck service for one-ton trucks. We recommend it for such service because of its peculiarly durable construction and its surplus power.

Below are brief specifications:

Four Cylinder	Bore 3 1/4"	Stroke 4 1/4"
Four Cycle	Piston Displacement	
L Type, en bloc	187.9 cu. in.	
Head Integral	Horse power 22 1/2	
with Cylinder	(S.A.E.), 36.9 at	
block	2800 r.p.m.	
Thermo-Syphon Cooling		
Extra Large Crankshaft Bearings.		

Write at once for information as to deliveries and quantities available at this time.

Golden, Belknap & Swartz
Detroit, Michigan





**Evans
Model**

"HELE-SHAW" CLUTCH

Patented

is a finished, self-contained unit which admits of perfect control in driving and a smoothness of operation that eliminates wear and tear on other parts of the car.

As standard equipment on Baldwin Gasoline Locomotives, Four-Wheel Drive, Sterling and Kleber trucks it has proved itself to be the ideal clutch for the exacting requirements of motor truck service.

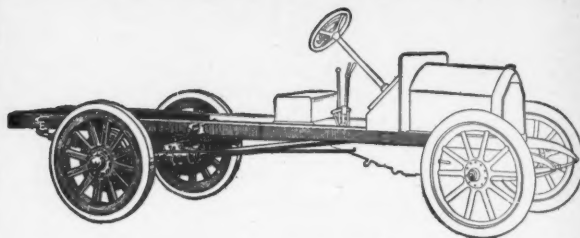
"M. & E." Grease Cups "Evans" Universal Joints

MERCHANT & EVANS CO.

NEW YORK PHILADELPHIA WHEELING
BALTIMORE ATLANTA CHICAGO
CLEVELAND ST. LOUIS
KANSAS CITY

TRUXTUN

REGISTERED UNDER COPYRIGHT
"HUDFORD TYPE"



THE TRUXTUN will convert any car into a sturdy, dependable, 1¼, 2 or 3 ton truck. An especial feature is the internal-gear axle drive, the same type as on 90% of "standard make" trucks. TRUXTUNS are now solving the delivery problem of thousands of owners.

DEALERS! An unusual opportunity to open new trade. Exclusive territory with liberal offer. Write for details.

COMMERCIAL CAR UNIT CO.

Oldest and largest makers of shaft-drive trucks
PHILADELPHIA, U. S. A.

POWER

With
ECONOMY
TRUCKS TRACTORS CARS



Pat. March 2, '15; Feb. 29, '16

Engineers specializing on lubrication estimate that of the unburned fuel which escapes from the combustion chamber into the crank case:

80% passes around behind the Piston Rings.
20% passes between the cylinder wall and the Piston Rings.

The same proportion holds good in regard to excessive lubricating oil carried to the piston head and then burned to carbon.

Pressure Proof Piston Rings

correct both of these serious troubles.

These rings do not reciprocate in the grooves. No oil or unburned fuel can pass around and behind them.

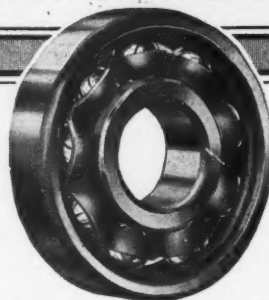
The design and construction properly embody their correct underlying principle.

Write for "New Facts About Piston Rings" and special dealer proposition

Pressure Proof Piston Ring Co.
168 Massachusetts Ave. BOSTON, MASS.



The Schatz "UNIVERSAL" Annular Ball Bearing



Materials
of the
Highest
Possible
Quality

Workman-
ship which
Establishes
a New
Standard

IN the "Universal" bearing the balls roll; there is no sliding friction under any conditions of load or speed.

The opening in the outer race serves to **distribute** radial load with resultant **greater carrying capacity** and **greater safety**. It retains a surplus of lubricant which keeps the raceways free from foreign particles.

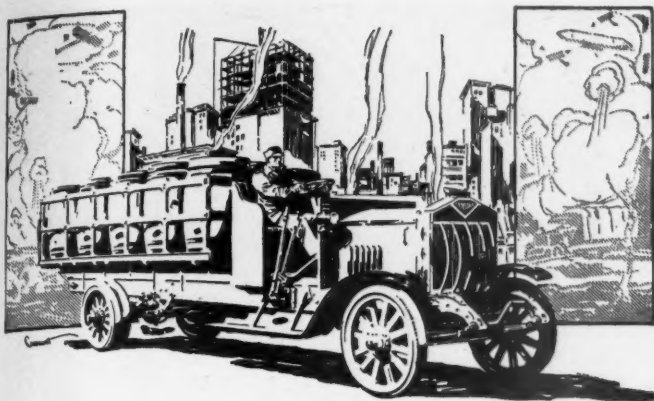
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The FEDERAL BEARINGS CO., Inc.
34 William St. Poughkeepsie, N. Y.

GREAT BRITAIN:
37 Sheen Rd, Richmond, London





Clydesdale

MOTOR  TRUCKS

Sturdy, strong and powerful enough to meet the stringent demands of war. Economical, dependable and light enough to more than profitably satisfy America's masters of commerce. Every inch of the Clydesdale bespeaks dependable performance under all conditions. Capacity up to five tons. Ask for our dealers contract.

THE CLYDE CARS CO., Clyde, Ohio

FULTON

MOTOR TRUCKS

FARMINGDALE, LONG ISLAND,
"AT THE PORT OF NEW YORK"

"Triple-heated" gas the secret of Fulton economy

Fulton one-and-a-half-ton trucks average from 12 to 14 miles to the gallon—in more than three hundred different lines of business.

This gasoline economy—hitherto unheard of in a truck—is the result of the "triple-heating" of the gas, an exclusive Fulton feature. By means of this super-heating, every ounce of fuel energy is made to deliver its maximum of driving power.

Tire economy is assured by the adoption of the internal gear drive axle, acknowledged to be not only the ideal type for motor trucks but the easiest on tires. Send for our booklet "Triple-Heated" Gas.

The Fulton Motor Truck Company

Farmingdale, Long Island, N. Y.

Distributors in principal cities

Write for open territory

Capacity
1½ Tons

Price
\$1620

The Kramm Foundry Co.

Indianapolis, Ind.

Makers of Maluminum Castings

announce the placing on
the market on June 1, 1918

Kramm Bearings

(Guaranteed)

for

Trucks, Tractors and Aeroplanes

These bearings will be furnished in
the rough, ready for machining

SEND US YOUR SPECIFICATIONS

and we will be pleased to
quote on your requirements

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The BANTAM BALL BEARING CO.
BANTAM, CONN.

DETROIT OFFICE
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F. M. COBBLEDICK CO.
693 Mission St., San Francisco, Cal.

LeRoi Engines

STANDARD on a number of light truck, tractor and power cultivator outputs. Recognized and used on past and present records of excellence.

The LeRoi engine will carry its share of long life, faultless performance and economy. If similar quality marks all other parts, then the product so equipped is a model of promise and performance.

Model "2C", with bore of $3\frac{1}{8}$ " and stroke $4\frac{1}{2}$ " is giving splendid service and complete satisfaction wherever used.

Our manufacturing facilities enable us to make reasonably prompt deliveries.

Write at once for complete information

LEROI COMPANY

Milwaukee, Wisconsin



Seal-Tite
PISTON RING

TRADE-MARK
NOTE THE SEAL

ONE
PIECE
OIL-
PROOF

THE
IDEAL HIGH
COMPRESSION
PISTON RING

MORE POWER
HIGHER
COMPRESSION
PERFECT LUBRICATION
SAVING OF
OIL AND GASOLINE
NO SMOKE
CLEAN SPARK PLUGS

PATENTED
JAN. 20, 1915

TRADE-MARK
NOTE THE SEAL

SEAL-TITE PISTON RING CO.

1700 E. Lake Street

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DOEHLER BABBITT-LINED BRONZE BEARINGS

The bronze used in these bearings is of the copper-tin-lead type, alloyed by us from the highest grade metals obtainable.

The Babbitt is of the tin-antimony-copper variety, absolutely free from impurities.

The Babbitt lining is joined to the bronze shell by a special process, of our own development, which results in a uniform, sound, and homogeneous unit.

The CONSISTENT use of these bearings, year after year, by the most prominent Motor builders in the country is ample proof of their merits.



Connecting-Rod Bearing
On Eight-Cylinder Motor

DOEHLER DIE-CASTING CO.

BROOKLYN, N.Y.

NEWARK, N.J. TOLEDO, OHIO.

Also Die-Cast Babbitt Bearings. Die-Castings in Brass & Bronze, Aluminum and White Metal Alloys

PANHARD

—the Twin-Frame Truck

1 1/2-Ton \$1395 Chassis

1-Ton \$1195 (Chassis)

*Extraordinary Dealer Proposition
Write for it*

Panhard Motors Company

Grand Haven

Dept. 14

Michigan



Instantly with RADIATOR NEVERLEAK

"Look for the Sunburst on the Can"

Don't lay up that truck, at great expense, to repair that leaky radiator! Radiator Neverleak will positively stop the leak anywhere in cooling system in five to ten minutes. Guaranteed to do the work. Cannot clog. A LIQUID.

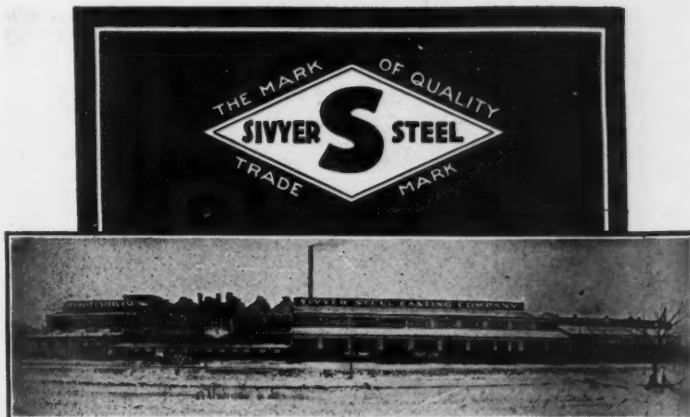
DEALERS: Urge every truck owner to carry Radiator Neverleak as regular equipment on every truck. Our guarantee protects you and you will render a greatly appreciated service to every customer. Your profit is 85% on every 75c sale.

Write for particulars today.

Buffalo Specialty Co.

356 Ellicott St. BUFFALO, N. Y.

"The LIQUID VENEER People"



THIS IS THE PLANT WHICH PRODUCES

QUALITY STEEL CASTINGS

for truck makers who demand
"Quality First"

We will more than meet
your specifications.

SIVYER STEEL CASTING CO.
MILWAUKEE, WISCONSIN.

HURLBURT TRUCKS

Stand as striking examples of what service trucks should be. This line is the result of a long period of test and trial—and under every condition of stress, overload, and virtual abuse they have proved themselves. Today they are big fleet factors in the employ of many of the country's biggest and best known business concerns.

The Hurlburt line consists of five models—1½, 2, 3½, 5 and 7 tons—all oversized in capacity limits.

Hurlburt trucks are essentially a quality product. As such they are best handled by dealers who appreciate the value of correct design and proper construction, as compared with the "scrambled together" quantity product. We want such dealers. Our proposition will appeal to them.

Hurlburt Motor Truck Co.

Third Avenue and Harlem River
New York

CRAMP BUSHINGS



Truck, car and aeroplane builders who aim to build faultless service and long life into their product, take no chances; they use CRAMP BUSHINGS, made of the famous Cramp Special Bearing Bronze.

Cramp Bushings have highest compressive strength and real anti-friction qualities. We are prepared to furnish bushings machined complete, ready for installation, or the ingots and rough castings, as you may desire.

Endow your product with the Cramp reputation by specifying Cramp Special Bearing Bronzes. Bushings, of all things, should be of proven quality. Write us about it.

**Wm. Cramp & Sons Ship and
Engine Building Company**
Philadelphia, U. S. A.

Fuel Tanks for Trucks, Tractors and Passenger Cars

Regardless of your requirements and past experience buying fuel tanks for trucks, tractors or passenger cars it is distinctly to your advantage to get quotations and a sample of our product before placing your next tank order.



Increased capacity, promoted by our new plant equipped with modern and efficient machinery, assures prompt deliveries on all orders.

We also make *Sheet Metal Specialties*, including Mufflers, Light Steel Stampings, and similar parts used in the automotive industry.

Send your blue-prints and let us submit quotations that will surely interest you. State quantities desired.

A. B. & B. Specialty Co.

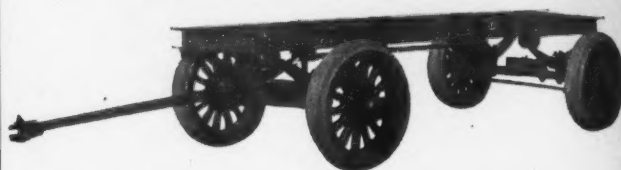
3300 Fond du Lac Avenue

Milwaukee, Wis.

All-Steel Ever-Wearing ROGERS TRAILERS

Cut Expense

Raise Profits



Trailers are vital to economical heavy haulage. Operating expenses can be cut because a truck can handle three times as much as it can carry. Obviously, three trailers are cheaper than three trucks. Business men with delivery problems can't afford to be without trailers—they raise profits for them as well as for the dealers who meet the demand.

Rogers Brothers All-Steel Trailers are the result of twenty years' experience in steel engineering and manufacturing. Rogers Brothers All-Steel Trailers are ever-wearing—many a one has traveled over 100,000 miles without showing, according to the buyers, any appreciable sign of wear.

Rogers Brothers Short-Turn Gear Trailers are light running, and rear wheels follow in tracks of front wheels when turning a corner. They can be drawn from either end and be backed successfully. Made to stand the hardest usage. All sizes up to 10 tons capacity.

They are brutes for strength. Every ounce of stress, strain, vibration, jerk, jar, carrying stress, etc., is met by proper design and construction.

Write us at once for our dealer proposition. We offer a highly profitable connection to aggressive men capable of handling big business.

Ask for Catalog "J"

ROGERS BROTHERS COMPANY

ALBION

PENNA.

Truck and Tractor Motors

Transmissions

Universal Joints

Steering Gears

Die Castings and Bronze-
Backed Bearings

Door Panels of All Descrip-
tions

Horns

Machine Work of All Kinds

SEND ALL INQUIRIES TO

**C. A. S. Engineering
Company**

790 Woodward Ave., Detroit, Michigan

LET US SOLVE YOUR PRODUCTION PROBLEMS

Our trained corps of efficiency and production engineers specialize in the automotive industry. Our field covers the entire industry from minor problems to huge undertakings.

Our service is the kind that brings real, tangible results. There is no red-tape about our service—nothing but clean cut, sure-fire methods.

We are expertly equipped to handle

**TOOL, GAUGE, DIE and
FIXTURE DESIGNING
and MANUFACTURING**

Accurate work and one time deliveries are absolutely guaranteed.

HARDING & COMPANY
122 S. MICHIGAN AVE CHICAGO, ILL.



DISTRIBUTORS—DEALERS

Menominee Trucks, products of nine years' truck building experience, are in the last analysis, the finality of the truck builders craft work.

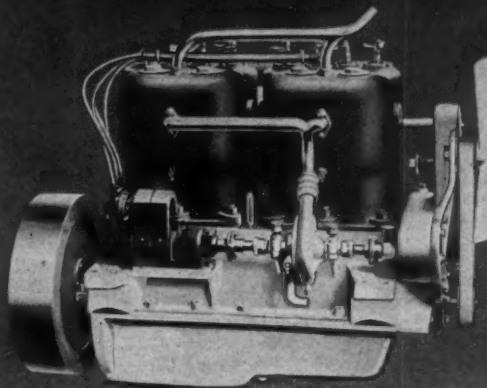
Years of continual successful service have given them a record for performance which has never been equaled by any line of similar types and capacities.

**MOTOR
MENOMINEE
TRUCKS**

are made in five models: 1 ton, 1½ ton, 2 ton, 3½ ton, and 5 ton. They answer every requirement of light, medium and heavy-duty work. They are marvels of strength and endurance.

Open Territory may still be had by distributors and dealers who realize what the prestige of this line means. Write for details.

MENOMINEE MOTOR TRUCK CO.
Dept. 10 MENOMINEE, MICHIGAN



Waukesha
TRADE MARK REG.

Motors for Trucks

are rapidly being adopted as standard by many of America's truck builders, because the combination of Waukesha materials and design produce a degree of efficiency and economy of operation found in no other truck motors.

Truck users—prospective buyers—truck manufacturers—write for **THE FACTS**

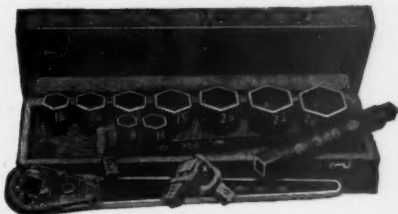
WAUKESHA MOTOR CO., Waukesha, Wis.
Pioneer Builders of Truck and Tractor Motors Exclusively

MOSSBERG
ALL
STEEL WRENCHES[®]
AND TOOLS

Operating Efficiency of Trucks

depends upon the care taken in making the necessary daily adjustments. Quick and efficient operating depends upon proper tools for repairing.

**Mossberg
Socket
Wrench
Set
No. 19**



has been especially designed to handle motor truck and general assembly work most economically. It includes an assortment of sizes to fit every need.

Write for descriptive catalog and prices
on complete Mossberg line

Frank Mossberg Company
Wrenchsmiths Attleboro, Mass.

BURKE AUTOMOBILE PRODUCTS



Manufactured solely by
**AUTOMOBILE
DEVICES
COMPANY**

REAL ESTATE TRUST BLDG., PHILADELPHIA
FIRST NATIONAL BANK BUILDING, CHICAGO
2010 BROADWAY, NEW YORK

Pat. 2-6-17

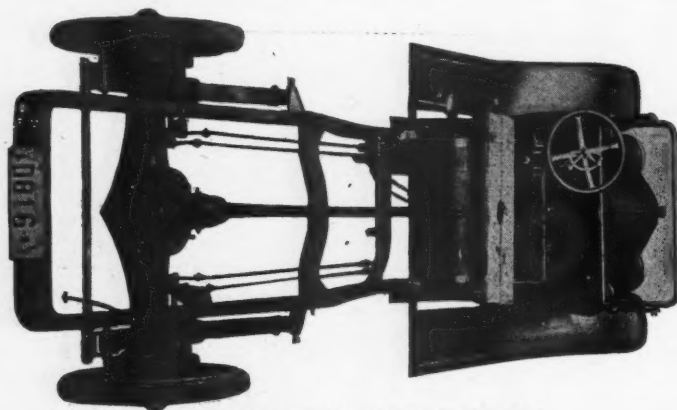


Sizes— $1\frac{1}{2}$ " to $3\frac{1}{4}$ "
Prices—\$4.00 to \$6.00

PETRY CUT OUT

Gases expelled to the rear through patented flared opening, prevents all back pressure. Lever has seven adjustments, which make easy installation. Spring is away from the body of Cut-out, does not absorb heat, has a simple tension adjustment and easy action, no strain on the exhaust pipe. Ends accurately machined for pipe size and fitted with set screw, which insures a permanently rigid installation.

N. A. Petry Company, Inc., 1319 Race St., Philadelphia



MODEL "D" ATTACHED TO OAKLAND

STEVENSON WORM-DRIVE TRUCK UNITS

For Fords and Other Cars
"Built to Stand Up"

A STEVENSON Agency will enable you to have the Dominant Truck Attachment in your territory. STEVENSON units insure satisfied customers. Write for particulars today.

MODEL { B, 1500 Pounds, FORDS
A, 1 Ton, "
C, $1\frac{1}{2}$ Tons, "
D, $1\frac{1}{2}$ Tons, UNIVERSAL

Hedden Place Machine Co., Inc.
East Orange, N. J.

Quality
BODIES
MADE BY
THE HEIL CO.
MILWAUKEE, WIS



The Design of Heil's Dump Bodies

is such that they have been adopted for SERVICE in PARTS where STRENGTH and DURABILITY are ESSENTIAL.

Quality
TANKS
MADE BY
THE HEIL CO.
MILWAUKEE, WIS

We build a complete line of Steel Dump Bodies for Auto Trucks and Trailers. Our combination body has the widest range of service. All of our Bodies are equipped with our 100% Tailgate Release.

The tailgate release that took the

WAR OUT OF WARNING

Our engineers and facilities are at your service. We send catalogue and prices promptly on request.

THE HEIL CO., MILWAUKEE WISCONSIN



The Compact, Dependable
Auglaize Hoist and the
Strong Alsteel Body

AUGLAIZE HOIST

Quadruple Worm Gear Drive

The exclusive features of the Auglaize Hoist are completely covered by U. S. patents. You have to pay more for any other efficient hoist and still do not obtain the advantages offered by the Auglaize. It weighs less than any other hoist; it occupies but 8" in back of driver's seat. It can be installed in a short time without drilling holes in the chassis frame or driver's seat, and regardless of the body being of wood or steel. With the Auglaize a boy can raise 4 tons in 3 minutes. Prices up to $1\frac{1}{2}$ tons, \$83.00; from $1\frac{1}{2}$ to 5 tons, \$109.00.

Inexpensive Alsteel Bodies

The strongest and best bodies built, yet low in price and with no upkeep expense. Will carry 50% overload and are guaranteed against defective workmanship. Price, according to size, \$150.00 to \$225.00. Write us for further details on Auglaize Hoists and Alsteel Bodies.

AUGLAIZE MOTOR CAR CO., NEW BREMEN, OHIO



Out Standardizing Standardization

It has been said that perfection dwells in the realm of the impossible.

Don't you believe it.

There is absolute, positive, definite, dependable perfection.

Not one lone, isolated illustration, but millions upon millions of mirror-like polished, glistening steel balls—Hoover Steel Balls—daily pouring out of the most wonderful plant of its kind in existence.

And, should you select at random, any day or every day in the year, one, or a hundred thousand steel balls out of the millions, you would find absolute perfection personified.

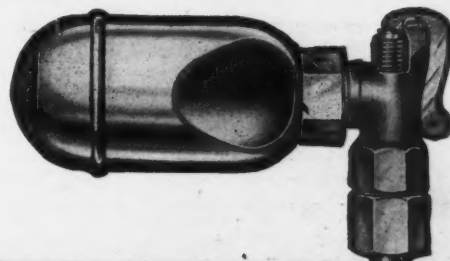
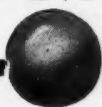
It could not be otherwise, because under the direction of L. J. Hoover, the founder of this gigantic and vital American industry, nothing has been left to chance.

All previous methods of testing steel ball accuracy has been far outdistanced by Hoover systems—guesswork and approximate perfection find no resting place in the great Hoover Steel Ball factory.

HOOVER
STEEL BALL
CO.

HOOVER
STEEL BALLS

Ann Arbor,
Michigan,
U. S. A.



Quick Cash Sales

Quick turn-overs and cash profits come to the dealer handling the self-advertising

Buell Explosion Whistle

Here is the most efficient, the most durable and the most popular auto warning device on the market. Write for interesting circular giving full details.

Buell Manufacturing Co.

1612 Michigan Avenue
CHICAGO



Velie

For the duration of the war, practically the entire productive power of our Company is being devoted to the needs of the Government.

We are, however, in a position to make some prompt deliveries of the famous

*"Biltwel" Automobiles,
Motor Trucks
and Tractors*

Velie Motors Corporation
119 Velie Place, Moline, Illinois

Two-Joint Assembly



UNIVERSAL JOINTS

Drop-forged—Case-hardened.
Perfect in material, design,
workmanship. Standard on
America's leading trucks.
Prompt deliveries on all sizes
up to five tons.

Let us co-operate with you.

Kinsler-Bennett Co., Inc.

Detroit Factory Representatives:
American Distributing Company

HARTFORD

CONN.





1 1/2 Ton Worm-Drive Chassis, \$2150.00
2 Ton Worm-Drive Chassis, \$2600.00

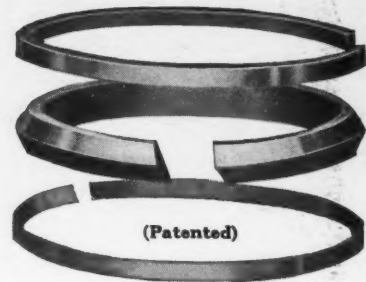
Buda Motor Brown-Lipe Clutch
Bosch Magneto Timken Worm Drive
Brown-Lipe Transmission
Timken Bearings Throughout

This high-grade Transmission and Power Plant is mounted on a chassis exceedingly well designed and very substantial.

You will find this a profitable line to handle.

The durability and efficiency of these trucks enable you to secure your customers' repeat orders and build up a clientele of satisfied users.

Sullivan Motor Truck Corporation
Rochester, N. Y.



Government specifications for the new 1 1/2- and 3-ton trucks show that if R & M Conform Piston Rings are used, only two are necessary to a piston.

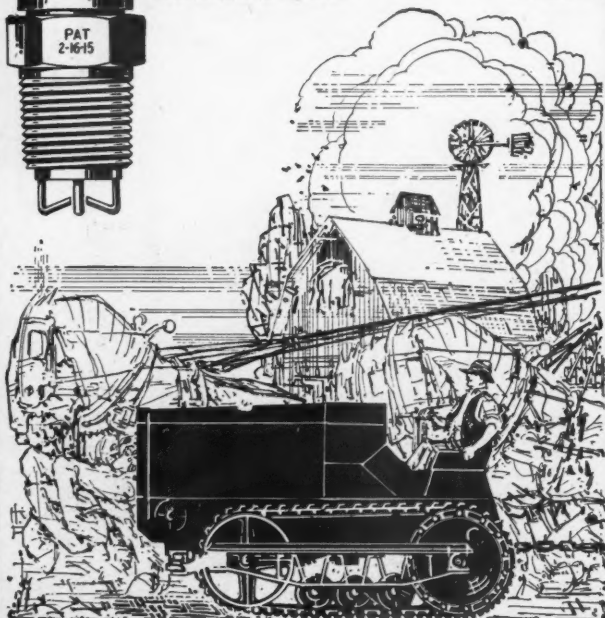
Two R & M Rings give better compression than three ordinary rings.

MODERN ELECTRIC & MACHINE CO.
INDIANAPOLIS, IND.



HERCULES
SPARK PLUGS
"STRICTLY A QUALITY PRODUCT"

ECLIPSE MANUFACTURING CO.
INDIANAPOLIS U. S. A.



Twenty Years' Experience
in Crankshaft Machining,
at Your Service



Accurate methods obtain here. Knowledge, a result of years of work, guarantees reliability and precision. Men, methods and machinery at our disposal make our machining far above the ordinary. When you turn over a job to us, you can rest assured that

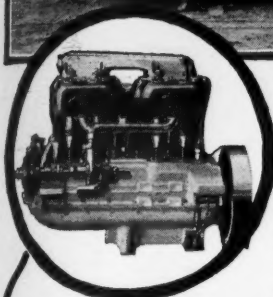
MOLTRUP'S METHODS

will return you a product that will be satisfactory from start to finish.

We have enlarged our plant. This was necessary in order that increased demand should not compel quantity production to interfere with prompt and quick delivery—and so we maintain our standards at no expense of time.

Prices, service and good work await your command here. Let us quote you.

Moltrup Steel Products Co.
Beaver Falls, Pa.



Under the Stress of War Duty

real efficiency is brought to light. Equipment that fulfills war's demands meets every commercial requirement. The army recently contracted for many thousands of F.W. D. Trucks, equipped with

Four- and Six-cylinder (all four-cycle) for Trucks, Tractors and Commercial work.

Write for specifications of types and sizes.

This signifies Government approval of Wisconsin Motors' continuous, consistent, dependable power. Of proven mastery over every power contingency. The argument that clinches truck and tractor sales.

WISCONSIN MOTOR MFG. COMPANY

Sta. A. Dept. 320

Milwaukee, Wis., U.S.A.

DISTRIBUTORS:

New York Branch: 21 Park Row, T. M. Fenner, Factory Representative.
Pacific Coast Distributor: Earl P. Cooper Co., 1310 Los Angeles Street
Los Angeles, Cal.

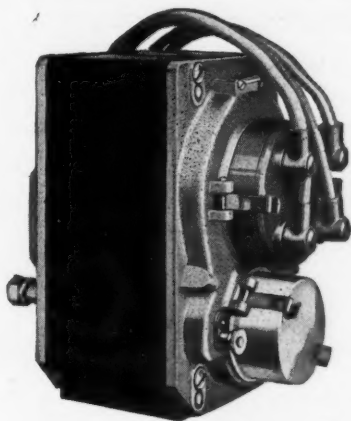
Wisconsin
CONSISTENT
Motors

WANTED • High Grade District Sales Managers and Zone Men

One of the strongest truck manufacturing concerns in the Middle West can use four or five good men right now. We are producing a complete line of quality trucks—honestly built all through, and reasonably priced—a line which any man can conscientiously recommend, and on which any live dealer can make money. We want star salesmen, the very best; men who can go right out and close up big contracts; men who are square in their dealings, able to see opportunities, and convince others that our line will make money for them—men who are real hustlers and business-getters. For such we have a big opportunity. If you think you qualify, tell us about yourself and what you have done. Write the whole story in your first letter; it will be held in strict confidence.

"Manufacturer"

Care of Commercial Car Journal
Market and 49th Streets
Philadelphia, Pa.



"A better spark in a simpler way"

The TEAGLE High Tension MAGNETO

for Trucks or Tractors—two, four, or six cylinders—with fixed or variable spark. Conforms to S.A.E. standards. Write for booklet.



THE TEAGLE COMPANY
CLEVELAND, OHIO



WRIGHT Taper Roller BEARINGS





"V" Shaped Fan Belting

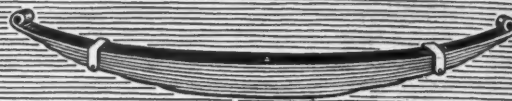
Vee Sol Belting is a "V" shaped solid leather belt designed for "V" pulleys. Made in any thickness, carefully and solidly cemented, and either bradded or sewed thru center with heavy linen thread. Guaranteed not to crack. 25, 50 and 100 ft. spools, in $\frac{1}{2}$ ", $\frac{5}{8}$ ", and $\frac{3}{4}$ ".

HIDE, LEATHER & BELTING CO.

241 S. Meridian St. Indianapolis, U. S. A.

IRON CITY SPRINGS

Built to stand hard truck service



Iron City Springs have made good in the truck world because they are built to more than meet the requirements of hard truck service.

Pyrometrically controlled heat treatment and thorough testing at every stage make assurance doubly sure that Iron City Springs will give complete satisfaction.

Let us quote upon your requirements.

Quality and deliveries guaranteed.

Iron City Spring Company

Pittsburgh

Factory Representatives
Wetzel-Hall Company
New York City Detroit, Mich.

Penna.

SOME SPECIMENS OF OUR DROP FORGINGS



These are but a few of the many automobile forgings upon which we have built a reputation. Our facilities are complete, our service prompt and the quality of our forgings unsurpassed. We can satisfy you.

The Union Switch and Signal Company
SWISSVALE, PA.

Two miles east of Pittsburgh, Pa.

DURSTON TRANSMISSIONS

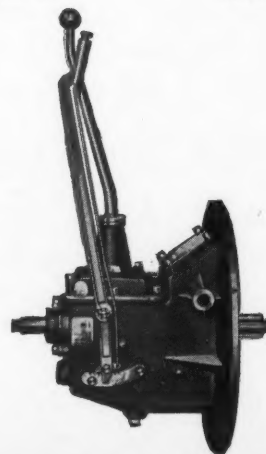
"Gears of Lasting Fame"

are designed by engineering experts on the true principles of durability and compactness. Materials of highest quality; workmanship, A-1.

We are able to offer designs for motor trucks up to 2½ ton capacity

Our engineering department will help you solve your transmission problem. Write us.

DURSTON GEAR CORP.
29 Maltbie St. Syracuse, N. Y.



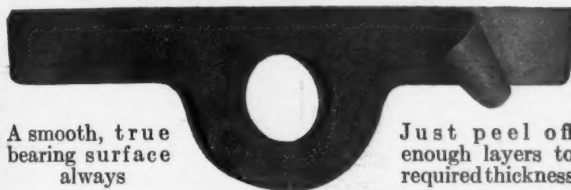
One of our Models



TRUCKS AND TRACTORS *Keep on Going*

Quick bearing adjustments mean conservation of time, money, labor. Engine efficiency is increased and costs for repairs reduced with Laminated Shims. Wise merchants, dealers, repairmen, invariably use—

LAMINUM
The MATERIAL for SHIMS



A smooth, true bearing surface always

Just peel off enough layers to required thickness

LAMINATED SHIM CO., 533 Canal Street, New York
Detroit: Dime Bank Bldg. St. Louis: Mazura Mfg. Co.

"Exide" Batteries



are endorsed by users in every field where the application of storage battery power is a factor.

Made by the oldest and largest manufacturer of storage batteries in the country, they are backed up by thirty years of specialized battery-building experience.

That experience assures to the user of an "Exide" the maximum of battery service at the minimum of cost and care required for its upkeep.

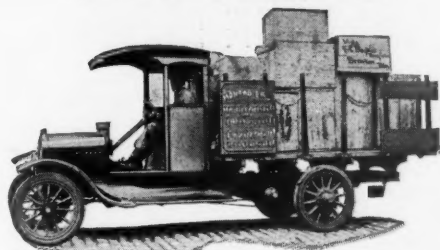
We have a special type of battery, correct in size and capacity for your Electric Commercial Vehicle and Industrial Truck.

THE ELECTRIC STORAGE BATTERY CO.

The oldest and largest manufacturer of Storage Batteries in the country

1888 PHILADELPHIA, PA. 1918
New York Boston Washington Minneapolis Denver Detroit
San Francisco Kansas City Chicago Cleveland Atlanta
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Graham Brothers of Evansville, Ind.



Manufacturers of
**Graham Brothers' Heavy-Duty Truck
Builder and Traction Truck Builders**

$\frac{1\frac{1}{2}}{2\frac{1}{2}}$ Ton Truck Builders for cars other than Fords

$\frac{1\frac{1}{2}}{2\frac{1}{2}}$ Ton Truck Builder, Special for DODGE BROS.

$\frac{3\frac{1}{2}}{5\frac{1}{2}}$ Ton Traction Truck Builders

with fifth wheel and semi-trailer equipment for Ford, Dodge Brothers and other makes of cars

Truck Bodies Nine distinctive types of Motor Truck Bodies for individual requirements; prices on request

Write for Particulars

Graham Brothers

Department I

Incorporated

Evansville, Ind.

Westinghouse

Automotive Electric Equipment

For

Automobiles

Airplanes

Trucks

Motor Boats

Tractors

Locomotives



Westinghouse Electric & Manufacturing Company

Automobile Equipment Department

General Offices: 110 to 114 West 43d Street, New York
Cleveland, Ohio Detroit, Michigan Indianapolis, Indiana
Works: Newark, N. J.




"Best Spark Plug for Trucks We Ever Used"

This is the unanimous opinion of every truck manufacturer, truck operator and truck dealer who has given the National Spark Plug a fair trial.

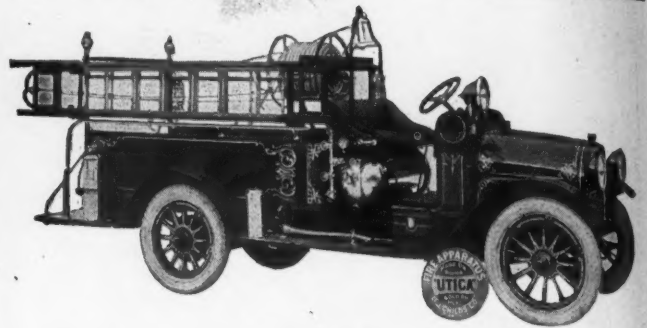
Try a set on your trucks for 30 days. The results—quicker starting, better economy, better "pulls"—will prove a revelation.

Price \$1 each. Guaranteed for 365 days. **Truck Users**—Order of your dealer. If he cannot supply you, send us his name and we will see that you are supplied direct. **Truck Dealers and Manufacturers**—Write for unusually interesting offer.



The Spark Plug With the One Inch Firing Surface

BERGIE NATIONAL SPARK PLUG CO.
ROCKFORD, ILL.

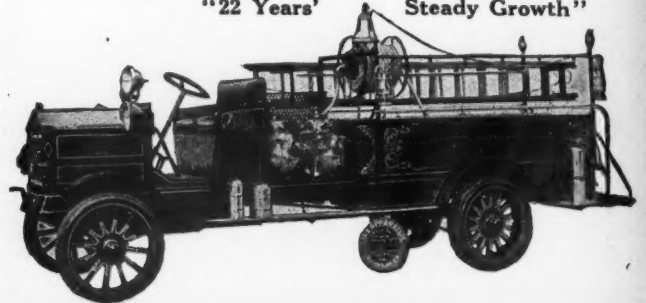


Progressive Truck Agents Sell Fire Apparatus

Ship us your Chassis, and we will do the rest
Write for Specifications

O. J. Childs Co. Utica, N. Y.

"22 Years' Steady Growth"




Extra Wide Friction Surface

has made it possible for the Hoosier clutch to add 20% grip efficiency over and above that of any other design. This, of course, guarantees longer life and calls for fewer adjustments.

In design it offers less weight, fewer parts, perfect balance, simple adjustment, and ready accessibility. In material it combines only the very best, and when you consider the amount of frictional punishment to which a clutch is subjected, then the question of quality of materials looms large. The

HOOSIER CLUTCH

is turned out in a factory with ample facilities for guaranteeing faultless work and quick deliveries, and your requirements will be met, no matter what they may be.

In this connection, note that the Hoosier clutch is made in several sizes in unit power and amidship types, and interchanges with other clutches of similar design.

We solicit opportunity to go into this matter thoroughly with automobile, truck and tractor engineers. Our work, when explained in detail, will carry conviction to the trained minds of those who know what a good clutch should be—and what it frequently is not.

The Hoosier Auto Parts Co.
Muncie Indiana

AT YOUR SERVICE

NORTH AMERICAN ENGINES

FOR



**PASSENGER CARS
TRUCKS AND
TRACTORS**

POTTSTOWN - PA

"The BOSSERT WAY"

Pressed-Steel Parts Stronger —But Lighter in Weight

"The Bossert Way" has proved that bulk and excess weight are *not* essential to great strength in truck and tractor parts. And lighter weight is the quality much sought by the foremost truck and tractor manufacturers. Bossert Pressed-Steel Parts solve that problem in a thoroughly efficient manner, because they are lighter in weight and stronger than the malleable iron or drop-forged parts they replace.

Bossert Pressed-Steel Parts cost less than the other types. This point should command your attention. Our service to manufacturers is thorough and complete. We offer over 200 Bossert Parts, many of which will satisfactorily meet your requirements.

Write us, explain your problems and we will show you how "The Bossert Way" will overcome your difficulties.

The Bossert Corp. Utica, N.Y.

Rainier

WORM DRIVE DELIVERY TRUCKS

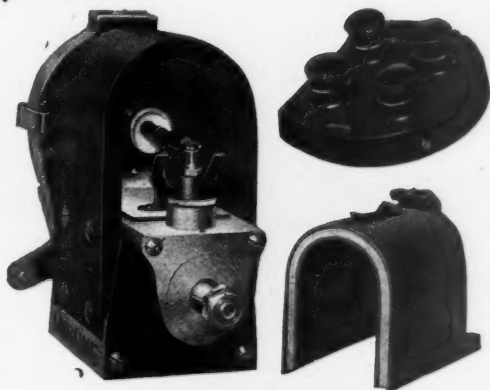


Built like the best known American heavy trucks, with all their successful features, including *worm drive*, Brown-Lipe Clutch and Transmission, deep frame, long wheel-base and special truck motor. Used in quantities by hundreds of leading firms throughout the country with whom first cost is not the deciding factor.

$\frac{1}{2}$ -ton chassis	$\frac{3}{4}$ -ton chassis	1 $\frac{1}{4}$ -ton chassis	1 $\frac{1}{2}$ -ton chassis
\$1150	\$1250	\$1475	\$1790

Rainier Motor Corporation

Factory, Flushing, L. I., New York
Sales Dept., 225-227 West 58th St., N. Y. City

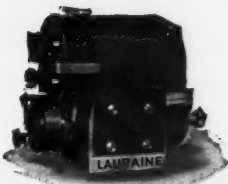


Quality

High Tension
Dust-Waterproof

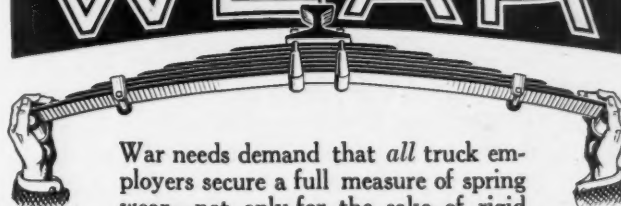
Precision

Adopted by the
Allied Governments



Lauraine Magneto Company, Inc., 1765 Broadway, New York

GET FULL MEASURE OF SPRING WEAR



War needs demand that *all* truck employers secure a full measure of spring wear—not only for the sake of rigid economy, but for maintenance of highest order of truck efficiency.

The far-reaching Guarantee under which

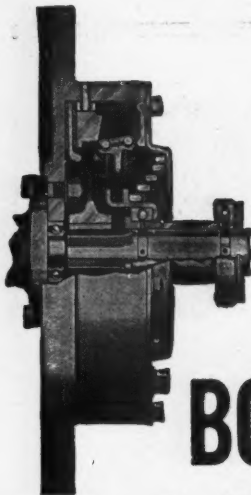
HIGGINS QUALITY SPRINGS FOR TRUCKS

are sold—years of successful usage back of them—the new, improved principle of construction, gives you positive protection against imperfections, breakage and bother.

State your needs and we will show you why Higgins-made Springs will satisfy them in the most satisfactory manner.

Higgins Spring & Axle Co.
Dept. 919 Racine, Wisconsin

NO BOLT — NO HOLE — NO HUMP — NO JOLT



BORG & BECK

Single Plate Dry Clutch

SIMPLICITY of design, light friction disc, light spring, convenience and infrequency of adjustment, slipping grip, so gradual in action as to make a "starting grab" or "jerk" impossible, mark the commendable features of this clutch.

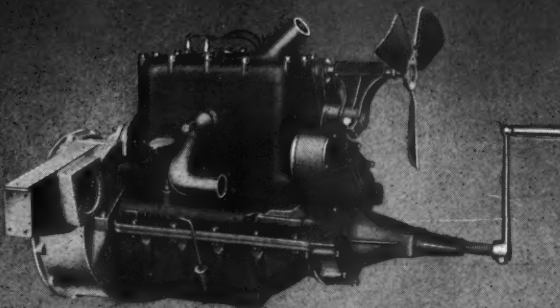
Note:—This clutch furnished, in various sizes, to fit all standard unit power plant transmissions.

The Borg & Beck Co., Moline, Ill.

Largest exclusive automobile clutch manufacturers

LIGHT MOTORS

For Trucks and Tractors



3¼x4½ 4 cylinder

HOTSPOT manifold for economy.
Detachable flywheel housing accessibility.
Bearings of Bronze-Back type durability.
Our own improved Oiling System.
Speed controlled by Governor makes the Light Motor a leader for ½, 1, and 1½ ton trucks.
Write for full particulars.

Light Mfg. & Fdy. Co. Pottstown, Pa.



Give You the Use of Every Drop of "Gas" and Prevent Fire and Explosion

The worth of the "Jasco" Tank is recognized both by pleasure car and commercial vehicle users.

It is the *absolutely leakless* gas receptacle—made of the finest steel, drawn, tinned and tested, and positively seamless.

Made in many styles and sizes for automobile or motor boat. Send for detailed literature.

Janney, Steinmetz & Company

MAIN OFFICE, PHILADELPHIA
New York Office, Hudson Terminal Building



THE CHOICE OF THE LEADERS

SANFORD TRUCKS

2½, 3½ and 5 Tons

(WORM DRIVE)



5-ton Sanford, equipped with Wood's hydraulic hoist and steel dump body. Bought by the Smith Wheel, Inc., makers of metal wheels for the leading trucks in America.

When the biggest concerns are selecting the Sanford, and giving repeat orders, it is because the Sanford meets the crying demand for truck efficiency and truck service.

The Sanford satisfies because it is built to meet the work expected of it. The Sanford simplifies all heavy hauling problems.

Immediate Deliveries

SANFORD MOTOR TRUCK CO. - Syracuse, N. Y.

Truck Efficiency Plus

A $\frac{3}{4}$ -ton truck with a 3-ton King Semi-Trailer gives 3-ton capacity at much less cost than a 3-ton truck. With a King Semi-Trailer you can treble the efficiency and capacity of your motor truck at slight additional cost. A great saving of time and expense is effected by using the



Its possibilities are enormous. The King Quick Demountable Fifth Wheel is the most satisfactory trailer Fifth Wheel on the market; it takes the strain off trailer, tractor and load.

Use Our Advisory Service—Free

Our wide experience in solving haulage problems is at your service. Tell us the size and make of your truck, material you have to haul, average length of haul and percentage of grades. We will help you engineer your hauling problems.

King Trailer Company

100 Main Street

Ann Arbor, Mich.



Universal Type for Cadillac and other cars, has Torbensen Axle, Kelly-Springfield Tires, Perfection Springs, Three-piece Frame and other exclusive features which make it the sturdiest, best designed truck unit in the field. Backed by experience and financial responsibility—and a liberal policy.

\$560.00

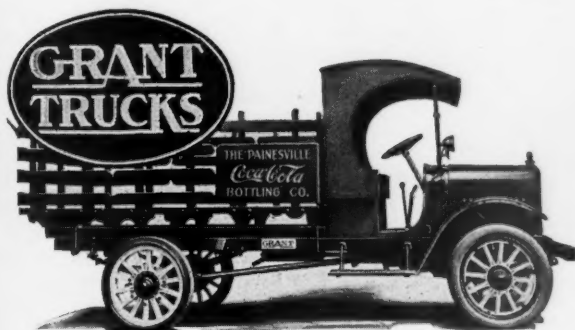
Dealers looking for a money-making unit are invited to write for our proposition. But don't delay.

THE LAUTON TRUCK COMPANY

Youngstown

::

Ohio



The Complete Trucks

THE first cost is the final cost of GRANT TRUCKS. No extras to buy—equipment is complete and includes electric starting and lighting, windshield, bumper, spot-light, motometer, etc. Modern in design, sturdily built and low in price.

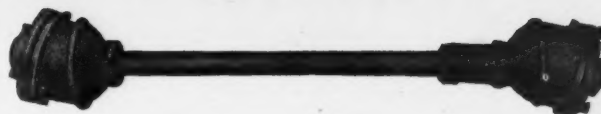
1800 lb.
\$1125

1½ Ton Chassis
\$1540

2 Ton Chassis
\$1850

Grant Motor Car Corporation
Cleveland

Spicer Universal Joints



Universally Accepted as the Most Dependable Flexible Connection Known to Motor Car Practice

Grease-Tight Dust-Proof

PARTS INTERCHANGEABLE

Spicer Mfg. Corporation

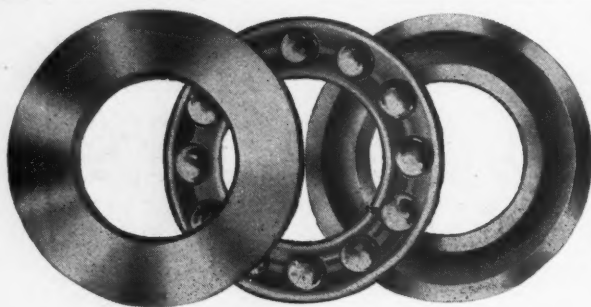
South Plainfield, N. J.

Sales Representatives:

A. H. Coates, 41 Spear Street, San Francisco, Cal.

L. D. Bolton, 2215 Dime Savings Bank Bldg., Detroit

Foreign: Benjamin Whittaker, 21 State Street, New York



THE BEARINGS COMPANY OF AMERICA

Manufacturers of

"Star" Ball Retainers for Thrust, Magneto,
and Cup and Cone Types of Bearings

COMPLETE BALL THRUST BEARINGS (Made to Your Requirements)

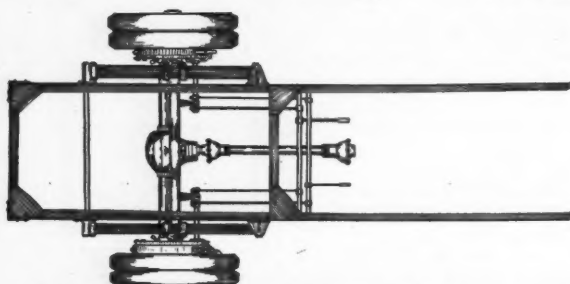
"Sterling" Universal Joints
FOR TRUCKS AND PASSENGER CARS

DROP FORGINGS

THE BEARINGS COMPANY OF AMERICA - Lancaster, Penna.

Western Sales Office, 1012 Ford Bldg., Detroit, Mich.

For Converting Passenger Cars Into Motor Trucks



We manufacture **TRUCK UNITS** with suitable frames and fittings for combining with **ANY MAKE OF CAR**.

We are also prepared to furnish promptly **TRUCK UNIT PARTS** for those who prefer to make the units themselves.

Send for Descriptive Circulars

There is a profitable opening in every locality for our line.

LUVERNE AUTOMOBILE CO.

Luverne, Minn.

CULLMAN SPROCKETS

in stock and to order.



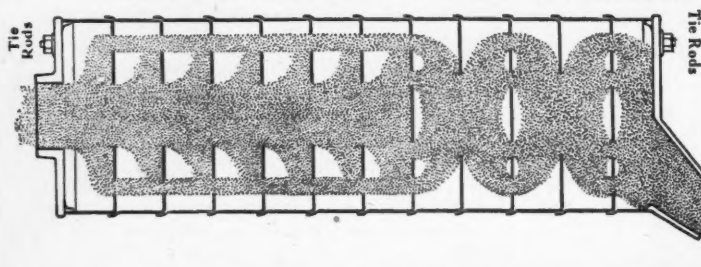
For Block, Roller and High Speed Silent Chains.
New Catalog.

Cullman Wheel Co., 1351 Altgeld St., Chicago



Won't Blow Up, Won't Leak, Won't Rattle. 'Twill Save the Price of the Muffler in Repairs in One Year's Time

POWELL PRESSED-STEEL MUFFLER



The cut illustrates the course taken by the exhaust gases in going through the muffler. It will be noted the very large holes that are used so as to eliminate back pressure and prevents the filling up with carbon. This cut also shows the method of assembling the sections so that one section overlaps another, forming a gas-tight joint, and makes the baffle plates integral with the outer shell. This positively eliminates any chance of these plates becoming loose, and also reinforces the outer shell so that they will not blow up. Malleable iron heads are used on both ends with tie rods running the full length of the muffler.

In making inquiry for mufflers, always state size of exhaust pipe, the bore and stroke and number of cylinders of your motor.

Standard equipment by 40 concerns—such as Pierce-Arrow, White, Garford, Autocar, Fifth Avenue Coach Company, etc.

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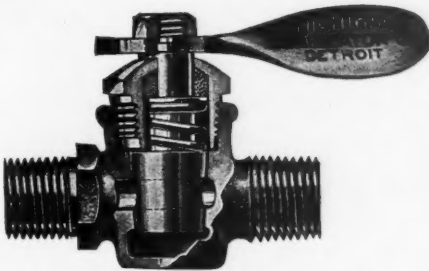
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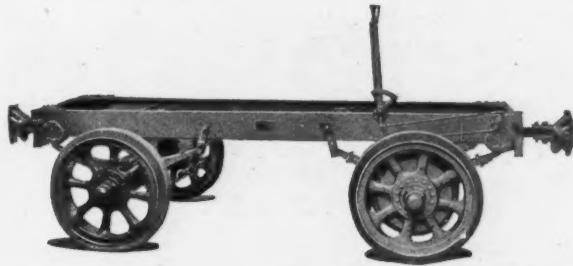
1. The stem is packed
2. The plug is ground
3. The bottom is closed

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Made with or without Brakes.
They are built for

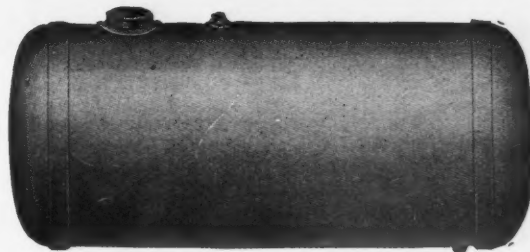
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Chilton Automobile Directory

Market and 49th Streets

Philadelphia, Pa.



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HIGH-POWERED 3½ TON TRUCK
for Long Distance Service—with a 5 Ton Motor—Solid or Pneumatic Tires
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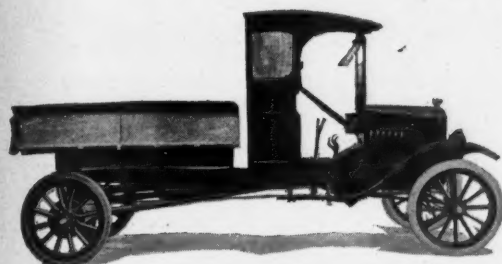
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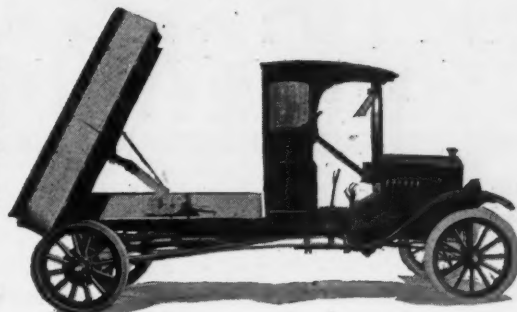
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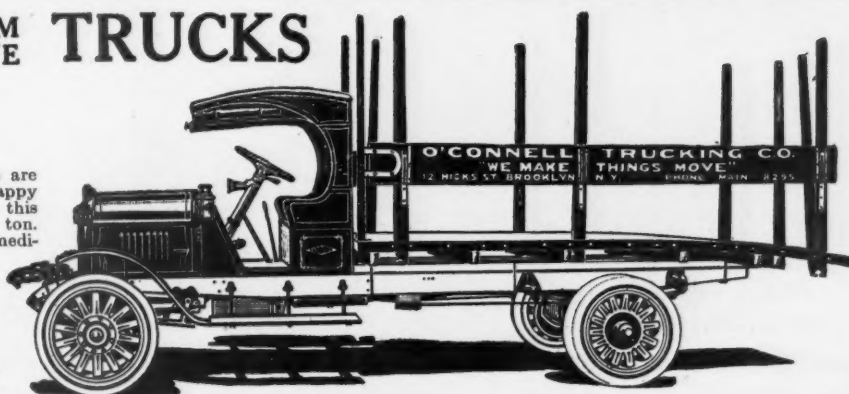
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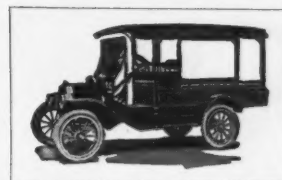
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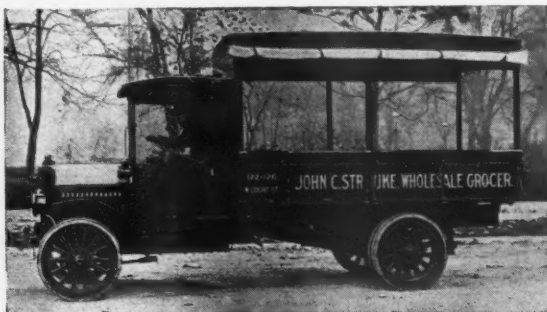
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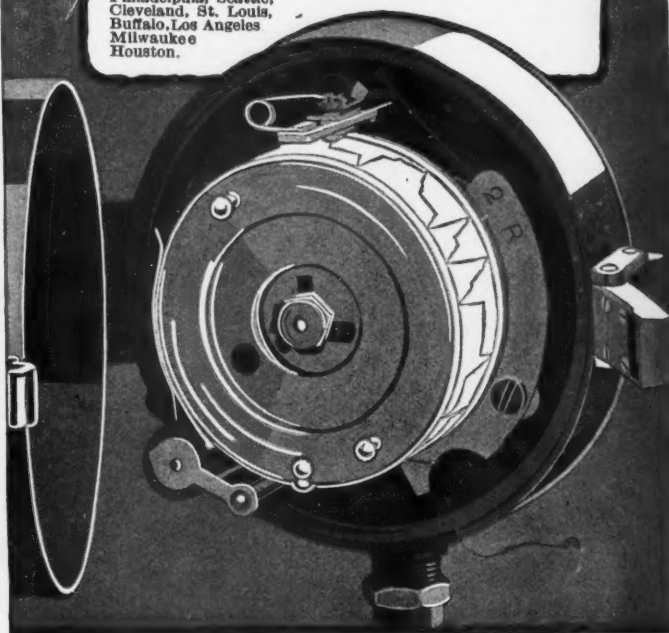
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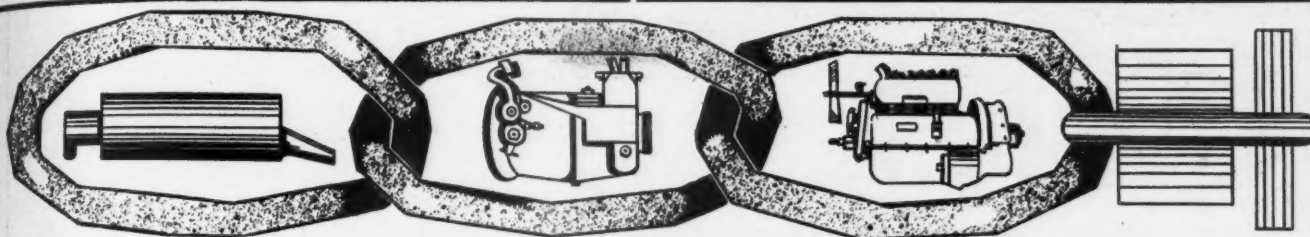
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Builders of Quality Coach
Work for Automobiles

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The muffler is the weak link in many truck jobs. Avoid that condition in your trucks by using the

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It's the result of 15 years' experience, produces greater engine efficiency, won't blow up, can't wear out, and gives the best service. Write for facts.

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Detroit, Michigan

Patented
April 24, 1917

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Big Business demands a new order of things, a more liberal advertising policy and business insurance against idle plant capacity after the war.

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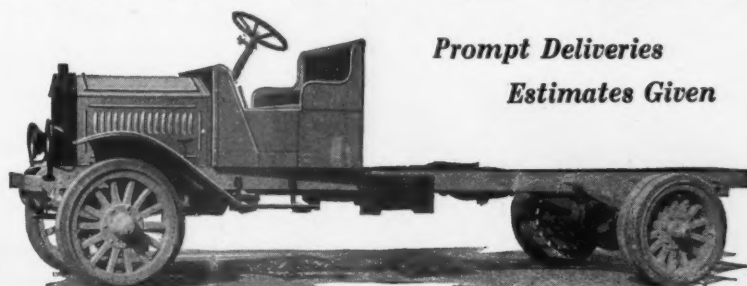
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Write us for more detailed information.

THE FAFNIR BEARING CO. NEW BRITAIN, CONN.

Detroit Office: 752 David Whitney Bld

Dragon Bearing
Patented July 13, 1915

Chicago Office 1919 So. Michigan Ave.



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THE LESSON OF 1918-

ANY CRISIS calls for equipment commensurate with the urgencies of the crisis.

Today we confront the greatest crisis in our national history. Today we are constructing, overhauling—breathing into our institutions an efficiency they never before knew.

Under radically altered conditions solid tires that were ample in peace times—ample in cushion when hauling was confined to congested districts and smooth pavements—have demonstrated they *will not do* today!

Trucks **MUST** have *more cushion*—**MORE RUBBER ON THE TREAD!**

You know this *now*. So does every truck user. Imperfect country roads have driven the message home.

But Goodrich science had foreseen the inevitable need five years ago. It had confidence in the growth of the motor truck industry. It believed in it.

IT DEVOTED its energy and genius—that same energy and genius that perfected the Silvertown Cord tire—to constructing a truck tire with *more rubber* on TOP of the tread. It put into that tire a class of rubber that for toughness and resilience is unexampled on the market today.

1918 has sustained Goodrich judgment and foresight—a faith in the industry—a recognition of the need for **MORE RUBBER**, an expression so admirably carried out in the Goodrich De Luxe Truck Tire. And those truck owners who took advantage of Goodrich foresight, and have continued to do so, are the men who are operating *with thrift* today!

Goodrich De Luxe can be had in all popular sizes at all Goodrich branches and Goodrich Distributor Service Stations.

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The City of Goodrich—AKRON, OHIO

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RUBBER
ON
THE TREAD**

De Luxe Truck Tires

MADE ONLY BY

GOODRICH

**GREATER
PROTECTION
FOR
LOADED
TRUCKS**

THE COMMERCIAL CAR JOURNAL

Entered as second-class matter at the Post Office at Philadelphia Pa.,
under the act of March 3, 1879

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Measure the value of a machine in terms of service—not in dollars and cents. What is its earning power? Is it continuously profitable? How long will its earning power last? Check up the first cost by the answers to these questions. Thus only can the right conception of values be had.

"NORMA" Precision Bearings, the standard bearings in high-grade ignition apparatus and lighting generators, are important factors in maintaining the service qualities of the cars, trucks, tractors, power boats and airplanes on which this dependable apparatus is used.

**Be Sure—See That Your
Electrical Apparatus
Is "NORMA" Equipped**

THE NORMA COMPANY OF AMERICA

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